



Training Manual



Safety Assessment Program (SAP) Coordinator

Response and Recovery Division

January 2005

**POST-DISASTER
SAFETY ASSESSMENT PROGRAM (SAP)
TRAINING**

FOR

**SAFETY ASSESSMENT PROGRAM
COORDINATORS**

For current SAP information, please visit our website at

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Acknowledgements

The Governor's Office of Emergency Services and Global Emergency Management gratefully acknowledge the assistance provided by representatives of the Structural Engineers Association of California, the American Institute of Architects, American Society of Civil Engineers, the California Building Officials, and Mr. Robert Bruce for their time and consideration in reviewing and commenting on this document.

We also acknowledge the assistance of the Applied Technology Council in allowing the reproduction and use of their photographs and diagrams that are used in this document. Specific credit is provided below.

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INTRODUCTION

The Safety Assessment Program (SAP) provides professional resources to local governments, assisting these with the safety evaluation of buildings and infrastructure in the aftermath of a disastrous event. Their goal is help local government perform accurate facility safety assessments as quickly as possible. SAP has been successful in this endeavor during recent major earthquakes such as Loma Prieta (1989), Bog Bear-Landers (1992), Northridge (1994), Napa (2000), and San Simeon (2003).

Volunteers and mutual aid resources are utilized to provide professional engineers and architects, geologists, and certified building inspectors to assist local governments in safety evaluation of their built environment in an aftermath of a disaster. The SAP program is managed by the Governor's Office of Emergency Services (OES) in cooperation with professional organizations. SAP produces two resources, SAP Evaluators, described above, and SAP Coordinators, which are local government representatives that coordinate the program. The latter training is the focus of this manual.

OES is pleased that you are interested in participating in this program as a Coordinator. Your role will be essential in the first hours after a destructive event to estimate the number of Evaluators needed by your agency in order to review your community's structures in a timely manner. There are procedures and limitations in using the SAP Evaluators which this instruction will help you to understand. There are also some examples of "best practices" gathered by use of the program over the years that will be passed on to you. Finally, the information you gather will be very useful to State OES in managing the event. We look forward to working with you and assisting you in adverse times through this program.

UNIT 1 SAFETY ASSESSMENT PROGRAM OVERVIEW

Unit 1 Training Guidance

Overview

This unit presents an introduction to the Safety Assessment Program and discusses qualifications, organization, liability issues, workers compensation, and ends with a glossary of common terms associated with safety assessment.

Training Goal

Provide the participants with the basic background of the program to better understand their role as safety evaluators.

Objectives

At the end of this unit participants will be able to:

- Identify where they fit in the overall emergency response operation; and
- Know and use the common terms associated with emergency response and safety evaluations.

1.0 Safety Assessment Program Overview

Safety Assessment is the process by which structures of all occupancies and lifelines are evaluated for their safety for immediate occupancy or continued use. The Safety Assessment Program (SAP) was developed to meet the needs of local government building departments during an emergency by providing architects, engineers, and building inspectors to assist with safety evaluations.

Through quickly evaluating structures for continued occupancy, we can reduce the demands on shelters and reduce shelter needs. The process of evaluating structures is based on the process and procedures described in the Applied Technology Council publication ATC-20 *Procedures for Postearthquake Safety Evaluation of Buildings*.

The Safety Assessment Program has the ability to provide personnel to any level of government to evaluate their building stock and lifeline systems (roads, bridges, pipelines, dams, treatment plants, reservoirs, etc.). This training program will concentrate only on the process and procedures associated with evaluating buildings and structures. Additional programs will be developed to focus on the process and procedures for the evaluation of lifeline systems.

1.1 Concept of Emergency Operations

During the response to disaster situations, the lowest level of government is always in charge. For a city, this will be the City emergency services, which means that safety evaluations will be performed through the City building department. For unincorporated areas this may be the County department.

Within the State of California all jurisdictions use the Standardized Emergency Management System (SEMS) to respond to any type of emergency or disaster. SEMS is a management system that allows a jurisdiction to smoothly transition from day-to-day activities to emergency operations.

The basic framework of the Standardized Emergency Management System (SEMS) provides for a five level emergency response organization, activated as needed, to provide effective response to inter-agency, multi-agency and multi-jurisdictional emergencies. The five levels of SEMS are:

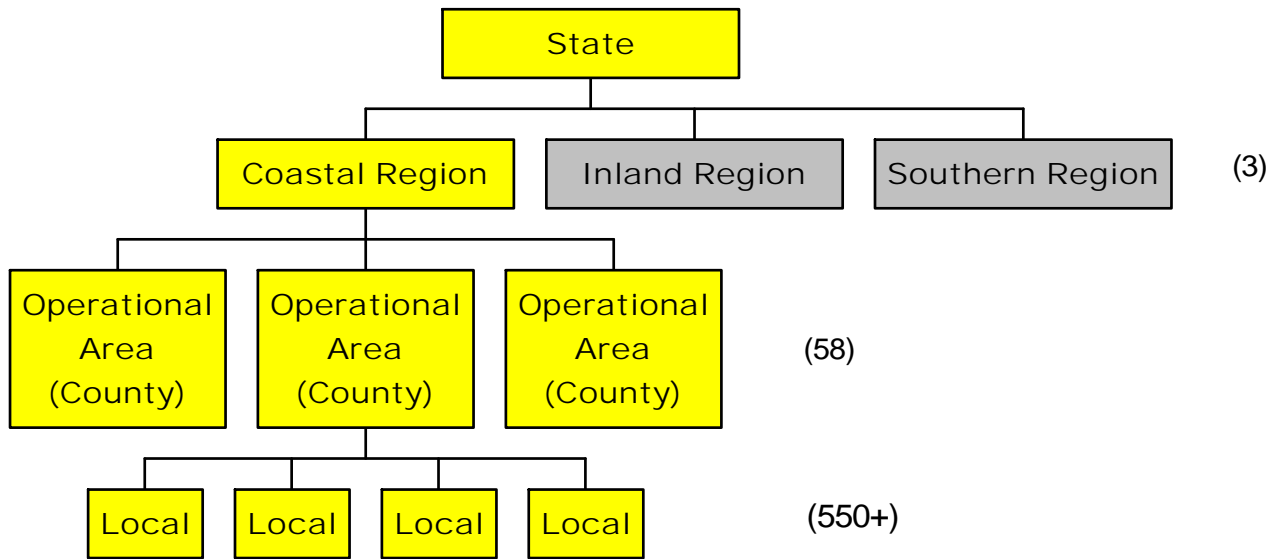
1. Field,
2. Local Government,
3. Operational Area,
4. OES Region, and
5. State.

During emergency operations all levels of government are connected through the internet with a system known as RIMS (Regional Information Management System). This allows for the swift exchange of information and reports throughout the operation.

Control of operations is always at the lowest level, with each succeeding level of government providing support. In other words, local government determines what they will do, how they will do it, and when they will do it based on their own priorities.

Under SEMS, counties are considered as local government, and they control the operations within the unincorporated areas. The Operational Area supports local government, the Regions support the Operational Areas and the State supports the Regions. The emergency response hierarchy is depicted

Figure 1-1 – Response Hierarchy



The state of California has been divided into six Mutual Aid Regions. The purpose of a mutual aid region is to provide for the more effective application and coordination of mutual aid and other emergency related activities. The Office of Emergency Services (OES) provides administrative oversight over the mutual aid regions through three Administrative Regional Offices located in the Inland Region at Mather Field, the Coastal Region in Oakland, and the Southern Region in Los Alamitos. These regional offices establish and maintain the Regional Emergency Operations Center (REOC).

1.2 Evaluator Qualifications

Local governments have expressed concern regarding the qualifications of participants in the program to perform safety assessment. In conjunction with the professional organizations and local government, the following qualifications have been established for individuals to be registered into the program individuals must be:

- Professionally registered California civil, structural or geotechnical engineers, Professionally licensed California architects, Professionally registered California geologists, or Certified building inspectors, or certified building officials (at this time recognized certifications are: Building Inspector [ICC], Building Plans Examiner [ICC], Combination Inspector [ICC], Building Official [ICC], Master Code Professional [ICC], Residential Building Inspector [ICC], Residential Combination Inspector [ICC], Combination Plans Examiner [ICC], Building Code Official [ICC], Construction Inspector – Division II [ACIA], Division of the State Architect Classes 1 & 2, and OSHPD Class A. For current certification information, please visit the SAP web page at the OES website at www.oes.ca.gov. CALBO inspectors and building officials must be employed by a local agency responsible for plan checking and inspections.
- Those not meeting these requirements may be a part of the program but will only be used as assistants to evaluators until such a time as they secure their professional registration, license or become a certified building inspector.
- Local governments must always use qualified persons as described above for safety

assessment. The Safety Assessment Program makes this practical. To do otherwise is not in the public interest.

Additionally, individuals must have:

- **General knowledge of construction** - the evaluator must be able to look at any particular framing system and rapidly identify the system, know how it works, and the corresponding load path.
- **Professional experience** - the evaluator must have practical experience working with the various framing systems. This experience may come from designing and detailing systems, reviewing the designs and details prepared by others, or inspecting the actual construction of the systems.
- **Judgment** - Above all else, evaluators must be able to look at a damaged or potentially damaged system and, based on their knowledge and experience, make a judgment on the ability of that system to withstand another event of approximately equal magnitude.

Safety Assessment resources available to local government fall into three categories:

- DSW – Volunteer – individuals from the private sector,
- DSW – Local – local government building inspectors, and
- DSW – State – Engineers, Architects, and Building Inspectors working for State Agencies.

1.3 Issues Surrounding Deputizing Individuals, Liability, and Workers' Compensation

Since the Safety Assessment Program was first developed there has been concern over the issues of deputizing, liability, and worker's compensation. The purpose of this section is to identify and address the main issues regarding these three topics.

1.3.1 Deputizing Resources

There is only one reason why OES recommends that a jurisdiction deputize the responding resources as Deputy Building Inspectors: only authorized representatives of a jurisdiction can post official jurisdiction placards. These are placards that have been formally adopted by the jurisdiction, carry the jurisdiction's seal and the authorizing ordinance number, and carry the weight of law.

Mutual aid resources are not representatives of the jurisdiction, consequently they cannot post official placards. When performing evaluations, the responding individuals can post only generic placards that are simply recommendations. If the jurisdiction wishes to have official placards used, they must either:

- deputize the responding individuals;
- send one of their inspectors with each team who will post the official placard; or,
- send an inspector out to the subject building and replace the generic placard with an official placard.

Some jurisdictions believe that they become financially responsible for Workers' Compensation if they

deputize the individuals who respond through mutual aid. This is not true. State resources from the private sector are provided with Workers' Compensation through the State of California, and local government resources receive their protection from their home jurisdictions.

1.3.2 Liability Issues

Liability protection is available to all who respond. These issues are not as prevalent with local government representatives because, as civil servants, they cannot be held personally liable for their action while performing the responsibilities and duties of their particular department. When individuals are provided by one jurisdiction to another to assist in the time of an emergency, these individuals perform the duties and responsibilities of their particular department. Once the receiving jurisdiction deputizes the individuals, they are protected through the receiving jurisdiction as a representative of that jurisdiction.

Liability protection for the private sector resources is a bit more complicated but just as viable. There is the general protection provided by California's Good Samaritan Law, which provides general immunity for anyone helping during a situation. This law was not really intended for disaster situations, but does provide some immunity nonetheless. Private sector resources are organized and registered by the Office of Emergency Services as Disaster Service Workers. In accordance with the **California Emergency Services Act** Section 8657:

"(a) Volunteers duly enrolled or registered with the Office of Emergency Services or any disaster council of any political subdivision, or unregistered persons duly impressed into service during a state of war emergency, a state of emergency, or a local emergency, in carrying out, complying with, or attempting to comply with, any order or regulation issued or promulgated pursuant to the provisions of this chapter or any local ordinance, or performing any of their authorized functions or duties or training for the performance of their authorized functions or duties, shall have the same degree of responsibility for their actions and enjoy the same immunities as officers and employees of the state and its political subdivisions performing similar work for their respective entities."

In 1977, the State's Attorney General issued a response to a series of questions presented by OES regarding the liability protection afforded by the **California Emergency Services Act**. The following are extracts of that opinion:

Question: *May structural engineers who are registered as Disaster Service Workers be utilized to assess the extent of damages incurred by buildings in an area struck by earthquakes?*

Answer: *Structural engineers who are registered as Disaster Service Workers may be utilized to perform post-earthquake damage assessments following the proclamation of a State of Emergency or a Local Emergency.*

Question: *Would the appointment of such engineers as Deputy Building Inspectors, without pay, affect their eligibility for state workers' compensation?*

Answer: *The appointment, without pay, of structural engineers who are registered Disaster Service Workers as Deputy Building Inspectors by government entities would not affect the engineer's entitlement to State Disaster Workers' Compensation Benefits, which would remain the exclusive remedy for physical injuries suffered by them while performing related activities.*

Question: *Would such engineers be required to be "fully conversant" with local building safety codes?*

Answer: *Volunteer Engineer/Disaster Service Workers would not be required to be fully*

conversant with local building and safety codes.

Question: If a local engineer, building inspector, or volunteer engineer certifies a structure is safe for occupancy and, when occupied, it collapses and individuals are injured, would the local entity, the state, or the certifying engineer be liable?

Answer: No liability would attach to a public entity, its employees, or a Disaster Service Worker under the circumstances presented.

Additional liability protection exists for licensed architects and registered engineers through the **State of California Business and Professions Code**, Chapter 30, Section 5536.27 for architects and Section 6706 for engineers. After the Loma Prieta Earthquake in 1989, many architects volunteered their services to the City of Oakland to assist in the safety assessment of buildings. Concerned about future liability, they championed SB46x that passed in 1990. This legislation modified the Business and Professions Code to provide liability protection for professionally licensed architects and registered engineers. The stipulations are that the:

- evaluations must be performed within the first 30 days after the earthquake;
- services must have been requested by a public official, public safety officer, or city or county building inspector acting in an official capacity;
- no fee is paid or taken.

1.3.3 Workers' Compensation

As can be seen from the above extract from an Attorney General's Opinion, the private sector resources are provided with workers' compensation through the **California Emergency Services Act**. Section 8580 of the Act states:

"The Emergency Council shall establish by rule and regulation various classes of disaster service workers and the scope of the duties of each class. The Emergency Council shall also adopt rules and regulations prescribing the manner in which disaster service workers of each class are to be registered. All of the rules and regulations shall be designed to facilitate the payment of workers' compensation."

CALBO members are covered by their home jurisdiction and State agency personnel are provided Worker's Compensation through the State.

1.4 Program Registration

Safety Assessment Program evaluators are registered into the program through one of two ways:

- Through their professional organization; or
- Employed by a State Agency.

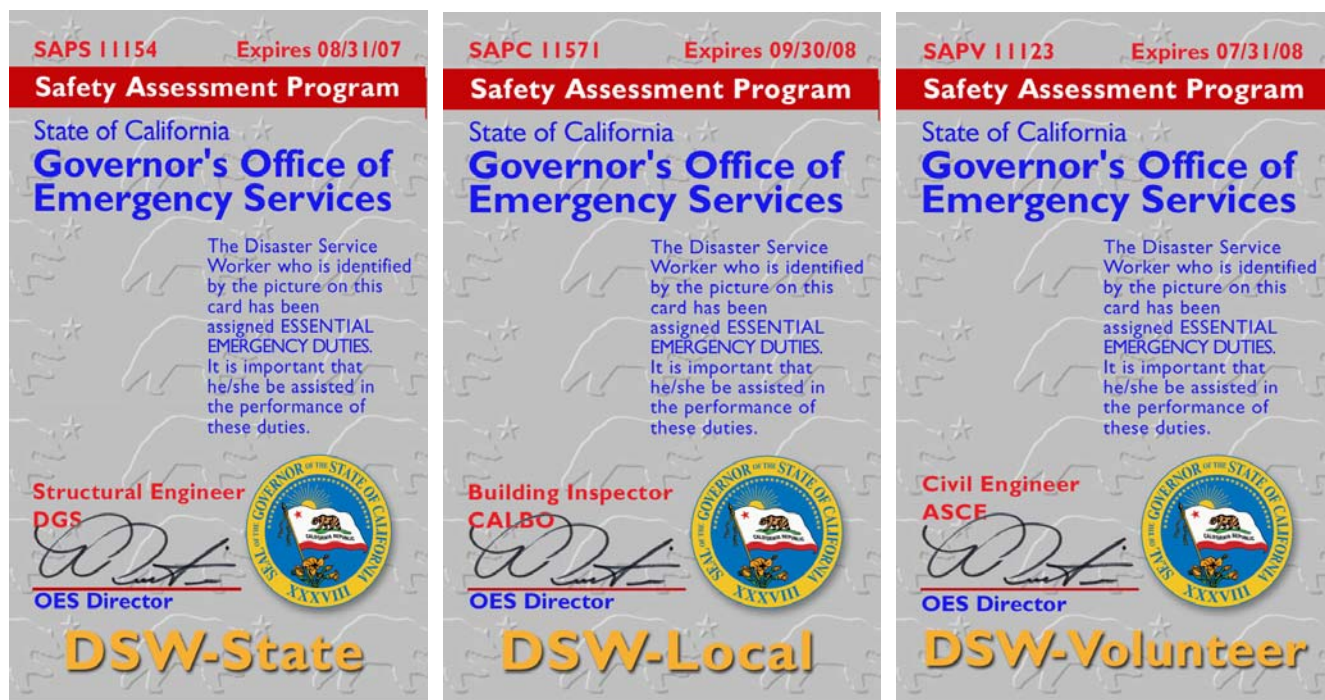
In both cases, individuals to be registered must meet the minimum qualifications previously presented. Additionally, to become registered, individuals must:

- Complete the one-day standardized training program presented by a certified trainer;
- Have a digital picture taken for the ID card; and

- Complete and sign the Loyalty Oath.

OES has determined that all Disaster Service Worker ID cards issued prior to July 2002 all expired in December of 2003. In order to renew your identification card, you must complete this course. In the future, the intent is to have refresher courses available on the internet. In the past, cards expired at different intervals, but now all cards will expire on a 5-year cycle.

A new ID Card has been designed so all cards will have a similar, identifiable look. Only OES will issue the identification cards.



1.5 Reimbursements

All responding individuals will not have to pay for any safety evaluation related expenses. They will be reimbursed for all housing, meals, travel and other related expenses. However, there are two reimbursement issues that all should be aware of:

- DSW Volunteers will not be able to receive pay of any kind while on a response. If they are paid, they lose their Worker's Compensation coverage through the Emergency Services Act and their employer will be responsible for the coverage.
- Volunteers who are not part of the OES Safety Assessment Program will not receive State Worker's Compensation coverage.
- For government employees, in accordance with the Master Mutual Aid Agreement, there is no expectation for reimbursement of salaries while on a response. During past activations of the program, there have been cases where the requesting jurisdiction has reimbursed the providing jurisdiction for their costs.

For requesting jurisdictions, their expenses related to the safety assessment process are eligible for reimbursement under the Public Assistance Program.

1.6 Activation Sequence

Once an event occurs, local government must reasonably commit their available resources to respond. For a building department, this means committing all of their inspection resources. This is usually done very early on, as many inspectors are sent out to do windshield surveys.

CALBO inspectors are available to local governments through mutual aid. That is, a local jurisdiction can request building inspectors either directly from another jurisdiction within their Operational Area (county) pursuant to mutually agreed upon procedures and in coordination with the Operational Area Coordinator or by requesting the Operational Area Coordinator to coordinate the request within the Operational Area between unimpacted jurisdictions, in accordance with SEMS. These resource requests follow the following model:

- Local Department Operations Center (DOC) determines need based upon contact with field forces at Incident Command Post(s) or Area Command. (note: small jurisdiction's may not have a DOC and accordingly this coordination level will be done at the EOC)
- DOC forwards request to Local Emergency Operations Center (EOC), Operations Section, Construction and Engineering Branch or Public Works Branch Coordinator. The Branch Coordinator will determine, in coordination with the EOC Logistics Section if there are sufficient local resources available to meet the need from other departments or through contracting out and obtain them.
- Local EOC Operations Section, Construction and Engineering or Public Works Branch Coordinator determines that there are not sufficient resources locally to meet the need in a timely fashion forwards the request to the Operational Area EOC Operations Section, Construction and Engineering Branch or Public Works Branch Coordinator.
- Operational Area EOC, Operations Section, Construction and Engineering or Public Works Branch Coordinator coordinates the request among the local governments within the OA and obtains the resource or determines that there are not sufficient resources within the OA to meet the need.
- Operational Area EOC forwards the request to the REOC, Construction and Engineering Branch Coordinator who in cooperation with the State Operations Center (SOC) SAP Coordinator coordinates the request regionally with the unimpacted OAs and obtains the resource or determines that there are not sufficient resources within the Region to meet the need.
- This request is forwarded by the REOC to the SOC where the State SAP Coordinator is located. Knowing the number and classification of individuals that are being requested, the State SAP Coordinator contacts the appropriate organizations to activate them. The organizations then mobilize their members and report to the identified staging area for assignment.

1.7 Responsibilities

To facilitate activation of the Safety Assessment Program and call-out of the appropriate individuals, the various disciplines have been assigned specific responsibilities. In this manner, OES knows which organizations to activate based on the needs of the requesting jurisdiction. This is simply guidance to the jurisdiction and the State for activation and is not intended to limit anyone beyond the limitations of their own qualifications. Actual assignments will be made by the jurisdiction based on their priorities.

- **Building Inspectors** perform ATC-20 rapid evaluations of all occupancies. They will also

assist, as needed, with detailed evaluations.

- **Structural Engineers and Civil Engineers with a background in structures** perform ATC-20 rapid and detailed evaluations of buildings and structures. They also will assist various state agencies such as the Division of the State Architect and the Office of Statewide Health Planning and Development.
- **Civil Engineers and Structural Engineers with a background in lifelines** perform rapid and detailed evaluations of lifeline systems and facilities. They are also available to assist state agencies such as the Department of Water Resources and Caltrans.
- **Architects** perform ATC-20 rapid and detailed evaluations of buildings and structures. They will also assist various state agencies such as the State Fire Marshal's Office and the Division of the State Architect.

Figure 1-2 below shows these responsibilities in the form of an organizational chart. This is the type of chart that the OES SOC will use to determine the appropriate disciplines to be activated based on requests for assistance. This is provided for guidance only to the State and local government and is not intended to limit any individual or group to a specific type of evaluation. Such limitations come from the individual's experience and background.

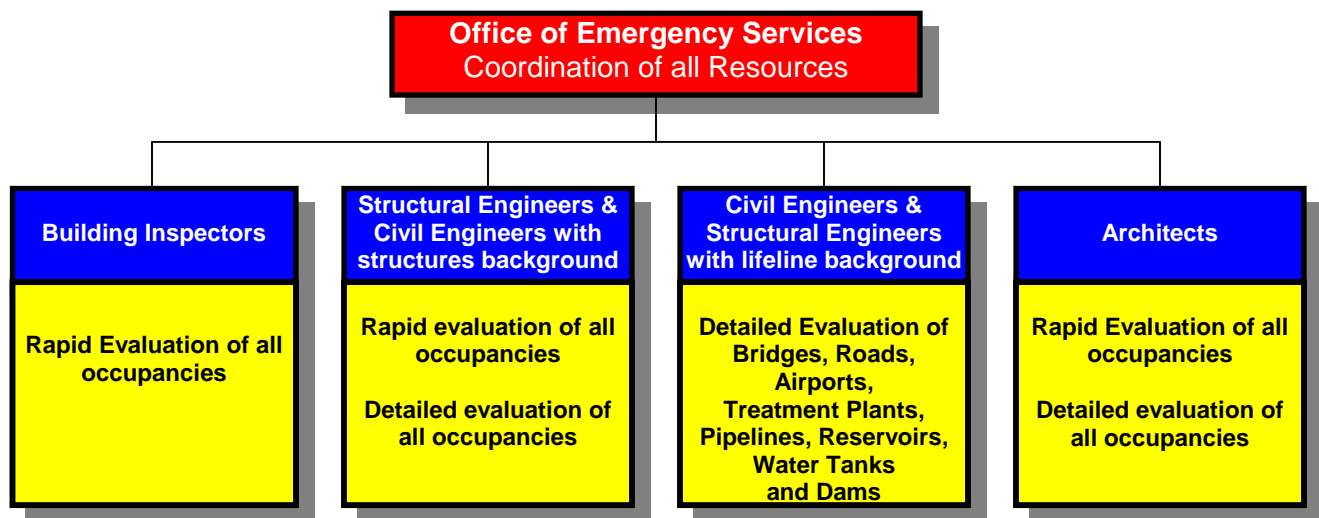


Figure 1-2 Discipline Responsibilities

For small events, only those individuals within the disaster area or immediate surrounding area will be activated. In this manner, they will not need housing and will be used on a limited basis.

For large events, individuals from within the disaster area will not be activated. Local government building inspectors will be inspecting buildings within their own jurisdiction and will not be available. Private sector individuals will have their own clients who will require their assistance. Consequently, the program will be activated outside the disaster area.

Each professional organization at the state level has appointed a "SAP coordinator" who oversees the safety assessment activities of the individual chapters or sections. Each section or chapter, known as a subdivision, has a "subdivision SAP coordinator" who:

- organizes the call-out procedures for the specific subdivision;

- organizes and arranges training and registration programs; and
- initiates the subdivision's call-out.

During an activation, DSW-Volunteers are activated for 3-days. DSW-Local and DSW-State resources are activated for as long as they are needed.

The following chart depicts the organization and the process of activating the Safety Assessment Program.

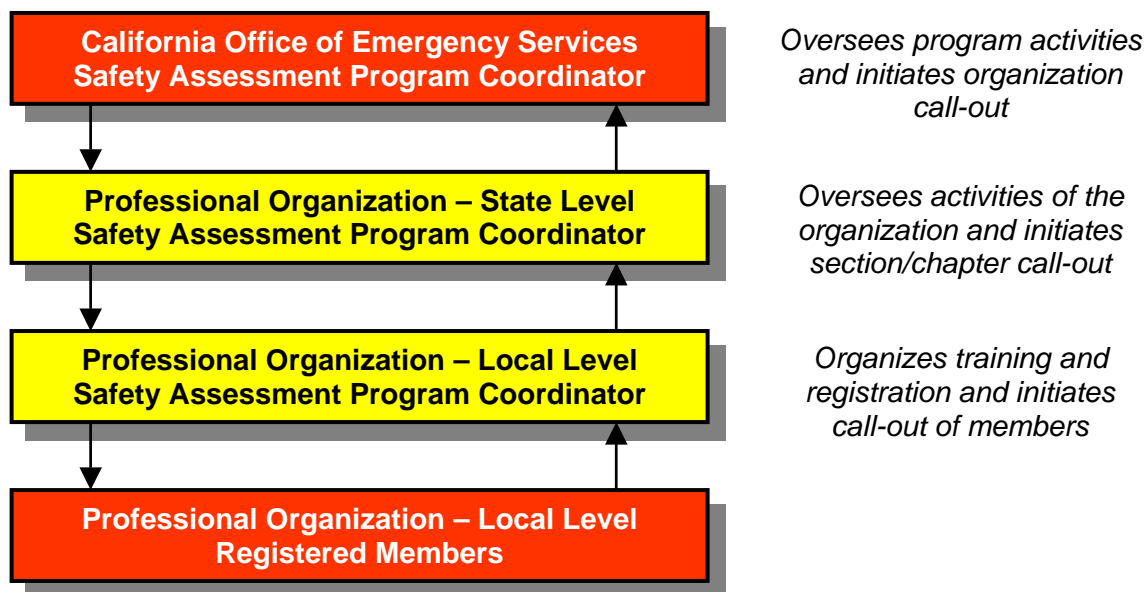


Figure 1-3 Organization of SAP

1.8 Who has Safety Assessment Responsibilities?

Any government entity that regulates building or lifeline construction and is responsible for facility safety has safety assessment responsibilities. This responsibility falls under governments' role of providing for public health and safety.

In the post-disaster theater, it is very important that habitable buildings be identified quickly. Some of these buildings will be used for medical care for victims, emergency management operations, and potential mass shelter facilities; but the vast majority of buildings are privately owned and provide a vital link to the economy of the area. Private businesses need to become operational as soon as possible after a disaster to keep the economy moving. The faster the economy of the impacted area returns to normal, the faster the recovery phase of the operation will be completed.

The following is a list of government agencies responsible for the performing safety assessments and the occupancies under their jurisdiction. These agencies will use the resources available in the Safety Assessment Program.

Buildings and Structures

- Local government* is responsible for their own facilities, all privately owned businesses, single-family residences, and multi-family residences within their jurisdiction as well as all structures

not specifically excluded below.

- *Division of the State Architect, Structural Safety Section* is responsible for all public schools--Kindergarten through 12th grade and Community Colleges--and all state-owned or -leased facilities. DSA will be developing safety assessment response protocols for these jurisdictions, but currently does not have the oversight responsibility for the safety assessment of schools. The Safety Assessment Program resource is one of the options available for school districts to have their facilities tagged for safety.
- *Office of Statewide Health Planning and Development* is responsible for all hospitals and skilled-nursing facilities.
- *State Fire Marshal's Office* is responsible for the fire and life-safety elements of all state-owned or -leased facilities. Fire elements refer to fire suppression systems, alarms, detectors, etc. Life-safety elements refer to exits, corridors, stairways, etc.
- *Department of Housing and Community Development* is responsible for mobilehome parks.
- *Federal government* is responsible for all federal buildings and installations no matter where the facilities are located. These assessments are usually performed by the U.S. Army Corps of Engineers from the area in which the disaster event occurs.

Lifelines:

- *Local Government Public Works* are responsible for the streets, bridges, storm drains, sewers, etc., which traverse the jurisdiction.
- *Special Utility Districts* are responsible for the pipelines and/or transmission lines that they install and maintain.
- *Department of Water Resources, Safety of Dams* is responsible for all dams except those owned or operated by the US Army Corps of Engineers or the Bureau of Reclamation.
- *Department of Water Resources, Flood Operations* is responsible for all levees, canals, and state water projects.
- *Caltrans* is responsible for all Federal in-service roads (those which are part of the national highway system) and all state-owned and -operated roads, highways, bridges, and overpasses.

The evaluation/inspection process is not limited to the jurisdiction's building department and the additional resources they may request. Many other agencies will be in the area performing various types of inspections and evaluations. Understanding and being prepared for the potentially large number of individual who will be in the jurisdiction can help eliminate duplicated efforts and lead to a sharing of information and cooperation between the agencies.

In addition to those agencies with safety assessment responsibilities, the following agencies and individuals will be in the area performing evaluations or reporting on the damage:

- *Red Cross* - Within 24 hours of the event, the Red Cross will be in the area performing its preliminary damage assessment, which consists of a windshield survey. This process is followed by a detailed assessment, which will be completed within 72 hours after the event. These inspections assist the Red Cross in determining sheltering, food, and temporary housing

needs.

- *State Department of Insurance* - sends a team, which includes state and private insurance representatives, immediately after an event. The team is called Insurance Damage Assessment Team (IDAT).
- *Insurance Companies* - once individuals begin to file claims with their insurance companies, adjusters will be in the area performing verification inspections.
- *Media - print, radio and television* - their presence will be apparent within minutes of the event. Reporters and camera crews will tour the streets looking for damage to broadcast and damage information from public officials. If the media are encountered while performing evaluations, the evaluators should refer them to the building department. Each jurisdiction has their own protocol for addressing media questions, and evaluators should not be providing information without the express permission of the building department.

After a local government requests that the Governor proclaim a State of Emergency, the Office of Emergency Services will send in damage assessment teams to work with local government to perform preliminary damage assessments (PDA) of those facilities eligible for State financial assistance. Once the Governor asks the President to declare a major disaster, the Federal Emergency Management Agency (FEMA) sends in damage assessment teams. These are inspections intended to develop more accurate repair estimates by rapidly inspecting the facilities for potential repairs. SAP teams are not part of this process and are not to be requested to perform "damage assessment" for recovery work. However, local governments may request recovery assistance utilizing mutual aid channels from other local governments.

- *OES Disaster Assistance* - these teams usually arrive before the FEMA teams to perform PDAs. The inspectors team up with local representatives and begin assessing the damage. This early assessment helps provide information as to whether or not the State needs to request assistance from the Federal Government.
- *FEMA - damage assessment for public assistance* - FEMA inspectors will make contact with the State inspectors and join local government representatives to perform the preliminary damage assessment of public facilities for public assistance. They inspect damaged buildings and facilities and gather cost information relating to the emergency response, repairs, and the budgets. Once there is a Presidential Declaration, these inspectors perform more-detailed inspections of the damaged facilities in order to develop project worksheets, the funding mechanism for Federal financial assistance.
- *FEMA - damage assessment for individual assistance* - as with public facilities, FEMA will have inspectors teamed with State inspectors to look at residential areas and the commercial business districts. They gather information and make cost estimates on the potential repairs of these damaged areas. Once a Presidential Declaration is made, the FEMA inspectors perform verification inspections when the property owner has applied for individual assistance.
- *Small Business Administration* - once there is a Presidential Declaration, the Small Business Administration will be in the area providing assistance to businesses and homeowners. Their inspectors perform verification inspections after applications for assistance have been made.

As we can see by the list of agencies involved in various forms of building inspections, there will be a large number of individuals in the area at any given time. Be prepared!

1.9 Roles and Responsibilities

Throughout the safety assessment process there are clearly defined roles and responsibilities for the evaluator and government.

Evaluators will:

- Assess the safety of essential services facilities;
- Perform rapid evaluations of all occupancies;
- Perform detailed evaluation of those questionable buildings, or as assigned by the building department.

Evaluators will NOT:

- Provide cost estimates for the buildings they have evaluated;
- Perform evaluations using code compliance as a criteria;
- Provide escort or property retrieval for owners or occupants of buildings.

Local government's roles and responsibilities include:

- Appointed a SAP Coordinator who will be responsible for managing the program during a response and will develop the Department Operations Plan;
- Formally adopting the placards and issuing them to the evaluators as needed.
- Deputize the responding evaluators. If they do not wish to deputize the evaluators they must be prepared to either send their staff out to replace generic placards, or assign one of their inspectors to each evaluation team.
- When the evaluators arrive, provide them with a formal briefing on conditions within the City, what they will be doing, and who to report to,
- Provide the evaluators with lodging and meals, or the forms for per diem reimbursement;
- Ensure that all authorities for the work to be performed are in place and current; and
- Provide them with key telephone and address information regarding disaster assistance to provide to the public if asked, along with police, fire, utility, and hazardous materials response telephone numbers for their own use.

1.10 Terminology

For the purposes of this course, we need to have a reference to the terminology that is used throughout the program. Additionally, it is helpful to the individual responding to have familiarity with terms that other organizations may be using within the context of their programs or responsibilities. The following are key terms or concepts with which the responding safety assessment individuals need to be familiar:

- **ATC-20 - INSPECTED - Habitable, minor or no damage** - this green placard is used to identify

buildings that have been inspected but no serious damage has been found. These structures are in a condition that allows them to be lawfully reoccupied, however, repairs may be necessary.

- **ATC-20 - RESTRICTED USE - Damage which represents some degree of threat to occupants** - this yellow placard replaced the old ATC-20 Limited Entry placard. Restricted Use is intended for buildings that have been damaged; yet the damage does not totally preclude occupying the structure. It can mean that parts of a structure could be occupied, or it could be used to denote those buildings that can be entered for a brief period of time only to remove possessions. Originally the limited entry placard was used to denote those buildings or structures, during a rapid evaluation, which were not obviously safe or unsafe. The intent was that questionable structures would then be scheduled for a detailed evaluation. The use of a restricted use category will minimize the number of buildings which will require additional safety assessments because restrictions can be placed on the use and occupancy of the structure until such a time as the owner can retain an architect or engineer to develop the necessary repair program.
- **ATC-20 - UNSAFE - not habitable, significant threat to life safety** - the red ATC-20 Unsafe placard is used on those structures with the most serious damage. Typically, these are structures that represent a threat to life-safety should they be occupied. It is important to note that this category does not mean the building must be demolished. This placard now carries the statement, "THIS IS NOT A DEMOLITION ORDER" to clarify that the building simply is not safe enough to occupy. In the vast majority of cases, structures posted unsafe can be repaired to a safe and usable condition.
- **Damage assessment** - The process that local and state agencies must perform to determine type and quantity of damage and the cost to repair those damages. This work is usually associated with disaster assistance applications from the jurisdiction through the State to FEMA.
- **EOC - Emergency Operations Center** - A local government facility that provides support for all field operations and from which resources are obtained and distributed to various field operations. Additionally, policy decisions are developed and dispersed through the EOC.
- **Mutual Aid** - A process to facilitate assistance to areas stricken by an emergency without the execution of written agreements customarily entered into by public agencies exercising joint powers. Mutual aid is based on the concept of "neighbor helping neighbor" in time of need without the expectation of being compensated. Mutual aid assistance can encompass any type of resource (material, equipment, or personnel) from other jurisdictions, the State, and even the private sector. The State of California Master Mutual Aid Agreement governs California's mutual aid program.
- **Incident Command System (ICS)** – A management tool that is used during emergency response operations. ICS is an organizational structure that encourages communication vertically through the organization as well as laterally between sections. ICS also incorporates incident action planning into operations, allowing for the definition of measurable goals to keep the operation coordinated.
- **Operational Area** – One of the five levels of the Standardized Emergency Management System. Generally speaking, an Operational Area is composed of a county and all cities and special districts within that county. The Operational Area is responsible for supporting all cities and special district tactical operations, and communicating event operational status to the next SEMS level, *i.e.*, the State Regional Emergency Operations Center (REOC).

- **Red Cross - DESTROYED - Not habitable, cannot be repaired** - Red Cross volunteers will perform evaluations for determining sheltering needs immediately after a disaster. These volunteers are seldom individuals with engineering or construction background, and their evaluations are usually limited to subjective. Visual windshield surveys of damaged areas. The criteria for the various categories are based on flood type damage and have very little comparison to earthquake damage. This designation is used by the Red Cross to help them determine the need for long-term housing.
- **Red Cross - MAJOR - Not habitable, needs extensive structural repair** - This designation is probably closer to being equivalent to the ATC-20 UNSAFE placard. Again, this information is used by the Red Cross to determine sheltering and housing needs only and may have no relation to actual structural condition.
- **Red Cross - MINOR - May be habitable, needs minor repairs and/or clean-up** - This designation falls somewhere between the ATC-20 RESTRICTED USE and the INSPECTED placards.

Participants should keep in mind that only authorized representatives of the jurisdiction or Safety Assessment Program Evaluators who have been deputized as Deputy Building Inspectors are authorized to post official habitability/occupancy placards as designated by the jurisdiction and defined by ordinance.

- **REOC - Regional Emergency Operational Center** - This is the facility operated and maintained by the State of California within the regional area being served. REOCs are located in Los Alamitos for the Southern Region, Oakland for the Coastal Region, and Mather in Sacramento County for the Inland Region. It is through this operations center that the State provides support to the Operational Area, coordinates requests for statewide resources, and provides the communication link between local government and the State of California. REOC operations are under the jurisdiction of the Governor's Office of Emergency Services.
- **Safety assessment** - The process by which buildings of all occupancies and lifelines are evaluated for their safety for immediate occupancy or continued use. This process is under the direction of local government through their building and safety or public works departments. During safety assessments, damage is not categorized or quantified.
- **SOC - State Operations Center** - This is the facility operated and maintained by the State of California in Sacramento County from which all requests for assistance are coordinated. All response efforts from State Agencies and State resources are also coordinated and directed from this location.

Notes:

UNIT 2 STANDARDIZED EMERGENCY MANAGEMENT SYSTEM (SEMS) INTRODUCTORY COURSE OF INSTRUCTION (G606, March 2001)

Unit 2 Training Guidance

Overview

The Standardized Emergency Management System (SEMS) Introductory Course is a self-study or instructor based course intended to give participants a basic overview of SEMS, including reference to the law and regulations, standard terms and definitions, and training needs.

Training Goal

The introductory course will provide participants with a basic understanding of the Standardized Emergency Management System (SEMS).

Objectives

At the end of this unit participants will be able to:

- Know and understand the purpose and scope of SEMS;
- Use common terminology associated with SEMS;
- Understand the five levels of organization within SEMS;
- Understand and operate using the functions and basic concepts of SEMS; and
- Apply basic operating requirements with individual responsibilities.

2.0 Standardized Emergency Management System (SEMS)

2.1 Background, Legal Basis and Intent of the SEMS Law

As a result of the 1991 East Bay Hills Fire in Oakland, Senate Bill 1841 was passed by the legislature and made effective January 1, 1993. The law is found in Section 8607 of the Government Code. The intent of this law is to improve the coordination of state and local emergency response in California.

The statute directed the Governor's Office of Emergency Services (OES), in coordination with other state agencies and interested local emergency management agencies, to establish by regulation the Standardized Emergency Management System (SEMS). The SEMS Regulations took effect in September of 1994.

2.1.1 Purpose and Scope of the SEMS Law

The basic framework of SEMS incorporates the use of the Incident Command System (ICS), Inter-agency coordination, the State's Master Mutual Aid Agreement and mutual aid program, and operational areas.

SEMS provides for a five level emergency response organization, activated as needed, to provide an effective response to emergencies involving multiple agencies or jurisdictions.

The use of SEMS facilitates:

- The flow of emergency information and resources within and between involved agencies at all SEMS organizational levels.
- The process of coordination between responding agencies.
- The rapid mobilization, deployment, use, and tracking of resources.

SEMS is designed to be flexible and adaptable to the varied emergencies that can occur in California, and to meet the emergency management needs of all responders.

By law, State agencies must use SEMS when responding to emergencies involving multiple jurisdictions or agencies. Local governments are strongly encouraged to use SEMS, and they must use SEMS to be eligible for state funding of eligible response related personnel costs. While local governments are not required to take the SEMS Approved Course of Instruction (ACI), they are required to ensure through training, that responders can successfully implement SEMS when necessary.

SEMS is a management system based on a proven approach that has been in use for over twenty years. SEMS provides an organizational framework and guidance for operations at each level of the State's emergency management system. It provides the umbrella under which all response agencies may function in an integrated fashion.

2.2 Need for SEMS Training

Training is essential to the effective use of SEMS at all levels. The State has developed and provided an Approved Course of Instruction (ACI). Agencies may use the Approved Course of Instruction developed by the State, or use an internal training program to meet required training competencies. Training competencies are described in the State's training curriculum as performance objectives.

There are four courses within the SEMS Approved Course of Instruction:

1. **Introductory Course** - A self-study or instructor based course.
2. **Field Level Course** - Seventeen modules of instruction on the Incident Command System are available for the Field Response Level.
3. **Emergency Operations Center (EOC) Course** - This course consists of three chapters that can be adapted for use by all agencies or organizations utilizing emergency operations centers.
4. **Executive Course** - An executive overview of SEMS, provided as self-study or instructor based.

The Approved Course of Instruction includes participant reference materials, instructor guidelines, visual materials, and tests and exercises.

2.3 SEMS Components And Features

2.3.1 Four Components of SEMS

SEMS integrates several of the State's primary emergency response programs. The primary components within SEMS are:

1. **The Incident Command System (ICS)** - developed as a part of the FIREScope program, (Firefighting Resources of California Organized for Potential Emergencies), during the 1970's, by an inter-agency working group representing local, state and federal fire services in California.

After field tests, ICS was adopted by the fire services in California as the standard all hazards response system. ICS also has been adopted nationally by the federal land management agencies as the standard for response to all wild land fires.

A National, generic version of ICS was developed by a multi-discipline working group which is used in the SEMS Field Response Level Course. Modules on Mutual Aid and addressing coordination between the field and other SEMS levels have been added to that curriculum.

2. **Inter-agency Coordination** - as it applies to SEMS, means the participation of various agencies and disciplines involved at any level of the SEMS organization working together in a coordinated effort to facilitate decisions for overall emergency response activities, including the sharing of critical resources and the prioritization of incidents.

The cooperative and collaborative working relationship between police, fire, public works, and parks departments in an EOC is an example of Inter-agency coordination as intended in SEMS. Another example would be the collaborative operational coordination that might occur between municipal police, county sheriff, California Highway Patrol, and National Guard elements that are involved in the same response.

SEMS Guidelines and the Approved Courses of Instruction all describe how inter-agency coordination takes place at various SEMS levels.

3. **The Master Mutual Aid Agreement** - was originally signed in 1950. Under this agreement, cities, counties and the State joined together to provide for a comprehensive program of voluntarily providing services, resources, and facilities to jurisdictions when local resources prove to be inadequate to cope with a given situation.

Written mutual aid plans and operating procedures have been developed for several discipline specific mutual aid systems that function on a statewide basis within the Master Mutual Aid Agreement. Examples of these are fire and law enforcement.

The mutual aid systems, current and planned, form essential links within SEMS. A comprehensive discussion of mutual aid is contained in SEMS Guidelines, and Module Sixteen of the Field Level Course of Instruction is devoted to the subject of Mutual Aid.

4. **Operational Areas** - one of the five organizational levels in SEMS. An Operational Area consists of a county, and all political subdivisions within the county area. The governing bodies of each county and of the political subdivisions in the county organize and structure their operational area. The county will be the lead agency for the operational area unless another arrangement is established by agreement.

The lead agency is responsible for:

- coordinating information, resources, and priorities among the local governments within the operational area,
- coordinating information, resources, and priorities between the regional level and the local government level, and
- using inter-agency coordination to facilitate decisions for overall operational area level emergency response activities.

Overall responsibility for the formation of the Operational Area rests with the Chairman of the Boards of Supervisors in each county.

The operational area is used:

- for coordination of emergency activities within the geographic area of the county, and
- to serve as a link in the system of communications and coordination between the OES Regional EOC (REOC) and the EOCs of the political subdivisions within the operational area.

2.3.2 Organizational/Response Levels and Activation Requirements

SEMS regulations describe five organizational response levels. The levels are:

- Field
- Local Government
- Operational Area
- Region
- State

The following is a brief description of each level:

1. **Field Response Level** - the level where emergency response personnel and resources carry out tactical decisions and activities under the command of an appropriate authority in direct response to an incident or threat. SEMS regulations require the use of ICS at the field response level of an incident. The Field Response level is described in the SEMS Guidelines, and in the Field Level Approved Course of Instruction.
2. **Local Government Level** - includes cities, counties, and special districts. Local governments manage and coordinate the overall emergency response and recovery activities within their jurisdiction. In SEMS, the local government emergency management organization and its relationship and connections to the Field Response level may vary depending upon factors related to geographical size, population, function, or complexity. The local government level is described further in the SEMS Guidelines.
3. **Operational Area Level** - an intermediate level of the state's emergency services organization, which encompasses the county and all political subdivisions located within the county. The Operational Area manages and/or coordinates information, resources, and priorities among local governments within the operational area, and serves as the coordination and communication link between the local government level and the regional level. It is important to note, that while an operational area always encompasses the entire county area, it does not necessarily mean that county government itself manages and coordinates the response and recovery activities within the county. In most cases, the county EOC will function as both the Operational Area EOC and the EOC for the county.
4. **Regional Level** - the state has been divided into six Mutual Aid Regions. The purpose of a mutual aid region is to provide for the more effective application and coordination of mutual aid and other emergency related activities. The Office of Emergency Services (OES) provides administrative oversight over the mutual aid regions through three Administrative Regional Offices. In SEMS, the regional level manages and coordinates information and resources among operational areas within the mutual aid region, and also between the operational areas and the state level. The regional level also coordinates overall state agency support for emergency response activities within the region. The regional level is described further in the SEMS Guidelines.
5. **State Level** - operates the State Operations Center (SOC) at OES Headquarters in Sacramento. It is responsible for coordinating resource requests and resolving priority issues that might arise at the Region level, between the three OES Administrative Regions. The State Operations Center is also responsible for coordinating with FEMA and other federal agencies involved in the implementation of the Federal Response Plan in California. The state level is described further in the SEMS Guidelines.

2.3.3 Basic Features used at each SEMS level

SEMS has several features based on the Incident Command System (ICS). The field response level uses functions, principles, and components of ICS as required in SEMS regulations. Many of these field response level features are also applicable at local government, operational area, region, and state levels. In addition, there are other ICS features that have application to all SEMS levels.

Described below are the features of ICS, which are applicable to all SEMS levels. These features are covered in more detail in appropriate parts of the SEMS Guidelines and the SEMS ACI.

1. **Essential Management Functions** - SEMS is based on the Incident Command System (ICS), which has five primary functions applicable to any emergency. These are: command/management, operations, planning/intelligence, logistics, and finance/administration. These functions are required for use at all SEMS levels. It should be noted that only the SEMS Field level uses the term "Command." SEMS levels above the Field use the term "Management" to describe the function having overall responsibility for activated EOCs.
2. **Management By Objectives** - means that each SEMS level should identify measurable and attainable objectives to be achieved. The time frame necessary to accomplish these objectives is known as the Operational Period.
3. **Action Planning** – should be used at all SEMS levels. The use of action plans provides designated personnel with knowledge of the objectives to be achieved and the steps required for achievement. Once objectives are determined for the operational period, the action plan provides a framework for establishing the necessary organization, making assignments and allocating resources to accomplish those objectives. Action plans developed at the Field level are referred to as "Incident Action Plans." Action plans developed at other SEMS levels are referred to as "EOC Action Plans."
4. **Organizational Flexibility and Modular Organization** - only those elements necessary to achieve the desired objectives should be activated. The organization can be arranged in various ways within or under the five SEMS functions. The next highest level within the activated organization must accomplish tasks normally assigned to elements not activated for the event.
5. **Unity of Command** - a management principle that requires individuals working within an organizational structure to report to only one supervisor. Unity of Command also requires that all organizational elements within each activated SEMS level be linked together to form a single overall organization with appropriate authority relationships.
6. **Span of Control** - ICS development established a one to seven ratio as the maximum span of control under emergency response conditions with a one to five ratio as an optimum. This means that in an emergency response organization, one supervisor should have direct supervisory authority of no more than seven and preferably only five positions if they are performing different functions. This ratio may be altered in some situations. For example, a supervisor may remain effective if supervising more than five responders who are all performing the same tasks, particularly if the tasks are not complex in nature.
7. **Personnel Accountability** - accomplished through the Organizational Unity and Hierarchy of Command/Management feature along with the use of check-in forms, position logs and various status keeping systems.
8. **Common Terminology** - is generally applied to describe organizational elements, position titles, facility designations and resources. There may be slight variations in certain terms to facilitate communication and coordination in some disciplines.
9. **Resources Management** - At the Field level, the use of resources is "tactically directed." At levels above the Field, resources are "coordinated and prioritized" for use at the Field level.
10. **Integrated Communications** - at the field response level, integrated communications is used on any emergency involving different agencies. At all EOC levels, and between all SEMS levels there must be a dedicated effort to ensure that communications systems, planning, and information flow are being accomplished in an effective manner.

2.3.4 Titles and Roles for the Five SEMS functions at the Field and EOC Levels-

The following table provides a brief summary of the titles and definitions of activities associated with these functions.

PRIMARY SEMS FUNCTION	FIELD RESPONSE LEVEL	EOCS AT OTHER SEMS LEVELS
Command/Management	Command is responsible for the directing, ordering, and/or controlling of resources.	Management is responsible for overall emergency policy and coordination.
Operations	The coordinated tactical response of all field operations in accordance with the Incident Action Plan.	The coordination of all jurisdictional operations in support of the response to the emergency in accordance with the EOC Action Plan.
Planning/Intelligence	The collection, evaluation, documentation, and use of information related to the incident.	Collecting, evaluating, and disseminating information and maintaining documentation relative to all jurisdiction activities.
Logistics	Providing facilities, services, personnel, equipment, and materials in support of the incident.	Providing facilities, services, personnel, equipment, and materials in support of all jurisdiction activities as required.
Finance/Administration	Financial and cost analysis and administrative aspects not handled by the other functions.	Broad fiscal and recovery responsibility as well as overall fiscal accountability.

2.3.5 SEMS Concept of Teamwork, Coordination, and Effectiveness

SEMS as a management system provides for a fully integrated and coordinated response to emergencies involving multiple agencies and jurisdictions at all SEMS levels.

2.3.6 SEMS Implementation

The SEMS Statute requires all state agencies to implement and use SEMS in responding to emergencies involving multiple agencies and jurisdictions.

Local agencies are encouraged to implement SEMS, but are not required to do so under law. Use of SEMS by local government agencies is required to obtain state reimbursement for eligible response related personnel costs.

The following material has been developed by an inter-agency working group to assist state and local agencies in implementing and maintaining SEMS:

1. SEMS Statute - Government Code Section 8607, January 1993.
2. SEMS Regulations - California Code of Regulations Title 19, Division 2, Sections 2400-2450.
3. SEMS Guidelines - in three parts.

4. SEMS Approved Course of instruction:

- Introductory Course
- Field Course
- Emergency Operations Center Course
- Executive Course

2.4 SEMS Operating Requirements And Individual Responsibilities

2.4.1 Roles and Functions for Personnel in SEMS organizations at all Levels

1. **Field Level** - emergency response personnel may assume a variety of positions within the Incident Command System. Agency policy will often dictate what personnel will fill each position. The concept is to use the most qualified individuals regardless of rank or normal organization assignment. The assignment of ICS positions to personnel will be determined by:

- The kind and size of the emergency,
- Disciplines involved,
- Personnel background and experience,
- Training,
- Qualifications and Certifications, and
- Agency policy.

Incident Commanders may at the onset of the emergency be relatively low ranking personnel. ICS provides a mechanism for the transfer of command if the emergency requires more qualified personnel.

2. **EOC Level** - each SEMS function within the EOC is generally staffed with individuals who have developed appropriate skills from their normal daily organization assignment. Placing the right person in each EOC position can facilitate the effective operation of the EOC. Appropriate training can also be beneficial to those assigned to perform various SEMS functions.

The tables on the following pages provide examples of how staffing might occur at various EOC levels within SEMS.

LOCAL GOVERNMENT OR OPERATIONAL AREA EOC

FUNCTION	STAFFING SOURCES
Management	Chief Administrative Officers, City Managers, Chief Executive Officers and their respective support staffs, to include Public Information or Public Affairs.
Operations	Key department managers and supervisors within public safety agencies, public works, parks, and other entities that possess resources and personnel that can be utilized in the response. The configuration of Operations may vary in other types of organizations such as special districts and schools.
Planning/Intelligence	Community Development, Planning Departments, together with representatives from public safety and public works staffs.
Logistics	Departments of General Services, Public Works and utilities are often used to staff Logistics. Other departments such as telecommunications may also assist with this function.
Finance/Administration	Finance, Budgets, Purchasing, Risk Management and other similar departments are appropriate sources of staffing for this function.

Again, the desired approach is to ensure that personnel are utilized based on their position, area of responsibility, ordinances, regulations, policies and the level of training they have received.

REGION / STATE EOC

FUNCTION	STAFFING SOURCES
Management	SOC Director - OES Director, Chief Deputy Director, Deputy Directors. REOC Director – Regional Administrators
Operations	To fill Section/Branch Positions: OES, CDF, CALEPA, DHS, DFG, CHP, CNG, EMSA, DMH, DSS, ARC, OSHPD, CEC etc.
Planning/Intelligence	OES Staff, CDF, CNG, DFG, CALTRANS plus Technical Specialists as necessary from CDMG, DHS etc.
Logistics	To fill Section/Branch Positions: General Services, OES, CDF, DFG, CNG, DPA, EDD
Finance/Administration	OES, Dept. of Finance
Note: If needed refer to the acronym guide at the end of this manual	

2.4.2 SEMS Pre-assignment Responsibilities

The activation of any SEMS level (Field or EOC) may require personnel to be temporarily relocated for an indefinite time. While most activations will generally be of short duration (one day to a few days), there may be situations in which personnel will be absent from their normal workplace and homes for extended periods (many days or even weeks).

During protracted activations, responding personnel should follow these guidelines:

- Assemble or update a travel kit containing any special technical information, e.g., maps, manuals, contact lists, and other reference materials that you may need.
- Pack personal items such as prescription drugs and other necessities in sufficient quantities.
- Review your emergency assignment. Know to whom you will report and what your responsibilities will be.

- Have a clear understanding of the decision-making authority you hold for your agency while at an incident or at an EOC. Determine this as soon as you realize you may be assigned to an incident or to your own or another EOC.
- Determine what communications procedures should be followed so you can contact your headquarters or home office if necessary.
- Ensure that family members know your destination and how to contact you in the event of a family emergency.
- Familiarize yourself with travel and pick-up arrangements that have been established for you.
- Determine what your return mode of transportation will be if possible.

2.4.3 SEMS Check-in Process

1. **Field Response Levels** - all personnel assigned to an incident must check-in upon arrival. The check-in function at an incident ensures that there is complete and continuous accountability over all assigned personnel. There are various specified locations at an incident where personnel and resource check-in can be accomplished. This is covered in the field level course.
2. **EOC Levels** - it is essential that a check-in function be established at all EOC levels to ensure accountability of personnel. Currently, this is done through the use of sign-in sheets, rosters etc.

2.4.4 Incoming Briefings in SEMS

All incoming personnel, whether to an ICS organization at the Field Response level, or reporting to an EOC, should be provided with a briefing, prior to assuming their assigned position. Briefings should include:

- Current situation assessment,
- Identification of specific job responsibilities,
- Identification of co-workers within your job function and/or geographical assignment,
- Availability of communications,
- Location of work area,
- Identification of eating and sleeping arrangements as appropriate,
- Procedural instructions for obtaining additional supplies, services and personnel,
- Identification of operational period work shifts, and
- After receiving your briefing and activating your assignment, give a similar briefing to any personnel assigned to you.

2.4.5 General Demobilization/Release Requirements for SEMS

Agency requirements for demobilization at incidents at the Field Response or at EOC levels will vary considerably. General demobilization considerations for all personnel at either the Field Response or EOC levels are to:

- Complete all work assignments,
- Brief subordinates regarding demobilization,
- Complete and file required forms and reports,
- Follow agency checkout procedures,
- Evaluate performance of subordinates prior to release,
- Return any communications equipment or other non-expendable supplies, and
- Report to assigned departure points on time or slightly ahead of schedule.

2.5 Summary

- SEMS requires emergency response agencies to use basic principles and components of emergency management including ICS, and Inter-agency Coordination.
- The five primary functions of Command or Management, Operations, Planning/Intelligence, Logistics and Administration/Finance must be provided for, in all organizations at any SEMS level.
- Personnel in a SEMS organization at any of the five levels must be assigned to a designated function within the organization, and at all times have designated supervision.
- Personnel assigned within a SEMS organization will safely carry out their assignment for an operational period or until relieved, and will provide a briefing for incoming relief personnel as required by agency procedures.

2.6 Where To Go For SEMS Training And Guidelines

The SEMS Approved Course of Instruction as well as the SEMS Guidelines may be obtained from the California Specialized Training Institute (Governor's Office of Emergency Services, Training Branch), or through the OES Web site at <http://www.oes.ca.gov>.

Acronym Guide

ACI	Approved Course of Instruction
ARC	American Red Cross
CALEPA	CA Environmental Protection Agency
CALTRANS	CA Department of Transportation
CDF	CA Department of Forestry
CDMG	CA Division of Mines & Geology
CEC	CA Energy Commission
CHP	CA Highway Patrol
CNG	CA National Guard
DFG	Department of Fish and Game
DHS	Department of Health Services
DMH	Department of Mental Health
DSS	Department of Social Services
EMSA	Emergency Medical Services Authority (state level) Emergency Medical Services Agency (local level)
EOC	Emergency Operations Center
EDD	Employee Development Department
FEMA	Federal Emergency Management Agency
FIRESCOPE	Firefighting Resources of CA Organized for Potential Emergencies
ICS	Incident Command System
OES	Office of Emergency Services
OSHPD	Office of Statewide Health, Planning and Development
REOC	Region Emergency Operations Center
SEMS	Standardized Emergency Management System
SOC	State Operations Center

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UNIT 3 SAFETY ASSESSMENT OPERATIONS

Unit 3 Training Guidance

Overview

This unit will look at the basics of emergency management focusing on the roles of government. The remainder of the unit looks at building department disaster operations and provides background in developing a successful safety assessment program.

Training Goal

To provide the participant with sufficient information so that they can develop a department operations plan for safety assessment, implement the plan, and order sufficient resources to carry out the plan.

Objectives

At the end of this unit the participant will:

- Know the roles of government in emergency operations.
- Be able to develop a department operations plan.
- Be able to determine the number of resources to request and how to request them.

3.0 Safety Assessment Operations

3.1 Roles Of Government During Emergencies and Disasters

In the context of emergency management there are three levels of government: local, State, and Federal. Local government includes cities, counties, and special districts. Each level of government has characteristic resources it can bring to bear during emergencies or disasters. Resources in this context mean any type of material, equipment, personnel, financial, legal, etc., asset that can be provided to assist with the response to an emergency. Simply stated, the contribution of each level can be summarized as follows:

- *Local* --direct motivation, knowledge of the situation, personnel, materials, equipment, and proximity to both event and resources;
- *State* -- legal authorities, administrative skills, personnel, equipment, fiscal resources, and a conduit between local and Federal resources; and
- *Federal* -- legal authorities, fiscal resources, research, technical information and services, and specialized personnel.

The primary role of government at each level is maintaining its continuity. Careful planning is required in order to prevent unlawful assumption of authority, preserve law and order, maintain leadership, deliver essential government services for public welfare, and ensure that clear lines of communication remain open among various levels of government and the public. In planning for continuity of government, seven principals are considered:

1. A list should be created of those individuals entitled to succeed one another under disaster conditions along with a process by which succession will take place.
2. A process of delegating disaster authority should guide leaders.
3. There should be a set of standard operating procedures or checklists for taking disaster steps, such as notifying emergency personnel and identifying emergency duty stations.
4. Emergency Operating Centers (EOCs), from which all disaster efforts can be coordinated and directed, should be identified.
5. Alternate EOCs should be designated.
6. Steps should be taken to safeguard those records that would be essential to the effective functioning of government and to ensure the protection of rights and interests of persons under disaster conditions.
7. Finally, the process should protect government resources, facilities, and personnel so that the government can operate effectively to allocate needed resources, provide essential public services, and restore government functions after disaster conditions.

3.1.1 Roles of Local Government

The local level is the first line of official public responsibility for emergency management activity. In an emergency, Federal and State resources may not be readily available. Therefore, the local emergency management agency must accept responsibility to maintain an ongoing program of mitigation,

preparedness, response, and recovery, known as integrated emergency management.

It is at the local level that potential hazards are seen most clearly, resources most fully known, first response is made, and emergency events begin. At this level are those individuals who know about the uniqueness of the community, who know where something may go wrong, where special complexities exist, and where sources of aid may be found.

The responsibility of local government in emergency management can be summarized through the functions of integrated emergency management. If a local jurisdiction is addressing these activities thoughtfully and effectively, it is fulfilling its important role in protecting public lives and properties.

This includes the following functions:

1. *Emergency Operations Planning* - Developing and maintaining emergency operation procedures appropriate to local hazards and resources.
2. *Direction and Control* - Having the ability to direct emergency response operations from an EOC or field location.
3. *Emergency Communications* - Capable of directing operating forces in an emergency.
4. *Alerting and Warning* - Able to alert public officials, response personnel, and the public that an emergency may exist.
5. *Emergency Public Information* - Distributing information on hazards relevant to the area.
6. *Continuity of Government* - Having legally designated lines of authority and other provisions to preserve the government under emergency conditions.
7. *Resource Management* - Able to quickly require, distribute, and use personnel and material needed in an emergency.
8. *Shelter* - Prepared to provide temporary emergency shelter and other life support to displaced persons in an emergency.
9. *Evacuation* - Able to evacuate the population efficiently in an emergency.
10. *Radiological Defense* - Has a program to minimize exposure to radiation in a nuclear attack.
11. *Emergency Support Services* - Involves key emergency organizations (such as police, fire, health and medial officials, and public works) in the integrated planning process.
12. *Emergency Reporting* - Ensure that all levels of government have access to essential information required to perform emergency management functions.
13. *Training and Education* - Trains public officials, emergency response personnel, and the public on hazards, protective measures, and emergency management concepts and skills.

3.1.2 Roles of State Government

State governments have a strong public mandate to do what they can to prepare for and respond to disasters. This mandate is translated into legislated authorities and extraordinary gubernatorial powers. The State is a source of laws affecting disasters. In addition, States have responsibilities as outlined in the **Superfund Amendments and Reauthorization Act** (SARA), Title III. Under the Emergency

Planning Community Right-to-Know portion of this Act, they are responsible for establishing a State Emergency Response Planning Commission and in turn approving districts, or areas, where Local Emergency Planning Committees (LEPCs) will be formed. The LEPCs must formulate emergency plans to be used should an incident involving the manufacture, storage, or transportation of hazardous materials occur. State government can provide public administration skills in emergency management (primarily in preparedness planning and long-term recovery administration) and limited financial resources.

The role of State government in emergency management parallels the role of the Federal sector. Legislative and executive authorities exist for State emergency programs with a range of programs usually operating in a variety of State agencies. The State has a responsibility to develop and maintain a comprehensive program of mitigation, preparedness, response, and recovery activities. The State role is to supplement and facilitate local efforts before, during, and after emergencies. The State must be prepared to maintain or accelerate services and to provide services to local governments when local capabilities fall short of disaster demands.

A State government is in a unique position to serve as a link between those who need assistance and those who can assist through determining the needs of local emergency programs, assessing available State and Federal resources, and helping local government apply for, acquire, and use those resources effectively. The State provides direct guidance and assistance to its local jurisdictions through program development, and channels Federal guidance and assistance down to the local level. In a disaster, the State helps coordinate and integrate resources and apply them to local needs. The State's role might be best described as "pivotal."

A governor of a State, responsible for the general welfare of the citizens of the State, has certain legislated powers and resources that can be applied to all-hazards emergency management. All governors in the United States have authority and responsibility for:

- Issuing State or area emergency proclamations,
- Involving State response actions (personnel, material),
- Activating emergency contingency funds and/or reallocating regular budgets for emergency activities, and
- Applying for and monitoring Federal assistance.

All States have laws that require them to have, or designate, a state emergency management agency and have a preparedness plan coordinated by that agency. In California, that agency is the Governor's Office of Emergency Services (OES). OES has developed and maintains the **State Emergency Response Plan**. Through the **State Emergency Response Plan** and the **California Emergency Services Act**, OES has been designated the State Coordinating Agency. During a response to an emergency, all State agency activities are coordinated by OES. During non-emergency times, OES:

- coordinates the State's role in disaster recovery and associated hazard mitigation;
- assists local governments in developing their emergency plans;
- develops and initiates preparedness activities and campaigns;
- assists local government to develop and implement preparedness activities; and

- provides training to local government in various areas of emergency management through the California Specialized Training Institute (CSTI).

3.1.3 Role of the Federal Government

The Federal government provides legislation, executive orders, and regulations that influence disaster activities. It maintains, through congressional allocation, the largest pool of fiscal resources that can be applied to emergency management. Some Federal agencies are sources of specialized research, technical information, and services needed in disaster work. Finally, the Federal government is a limited source of specialized personnel.

Research by the National Governors' Association has identified more than 100 Federal laws containing provisions directly relating to natural, technological, and national security emergencies. In fact, virtually every department and agency of the Federal government has some emergency-related responsibility mandated by law. Further extending and complicating the intricate Federal-level disaster authorities are a large variety of executive orders, regulations, and interagency agreements.

At the initiation of President Carter, Congress established the Federal Emergency Management Agency (FEMA) on April 1, 1979, and brought a number of previously fragmented disaster programs into a coordinated structure. FEMA does not include or direct all Federal disaster efforts but they are the Federal Coordinating Agency for all forms of disaster assistance. As a result of the multiple billions of federal dollars in fiscal and personnel resources committed over recent years to disaster assistance, President Clinton elevated the position of FEMA Director to a cabinet level post in 1995.

The Federal government's involvement in emergency management is primarily in the areas of assistance, regulations, and standards. Assistance may take the form of fiscal, material, personnel, or research and technical information. The response activities of the Federal government are organized and described in the **Federal Response Plan**. Within this plan, each of 12 functions are described and defined as "Emergency Support Functions" (ESFs) establishing a primary agency and support agencies. The following are the ESFs and the primary agencies:

- ESF #1 - Transportation - Department of Transportation
- ESF #2 - Communications - National Communications System
- ESF #3 - Public Works & Engineering - Department of Defense - U.S. Army Corps of Engineers
- ESF #4 - Firefighting - Department of Agriculture - Forest Service
- ESF #5 - Information and Planning - Federal Emergency Management Agency (Department of Homeland Security, or DHS)
- ESF #6 - Mass Care - American Red Cross
- ESF #7 - Resource Support - General Services
- ESF #8 - Health and Medical - Department of Health and Human Services – Natural Disaster Medical Service (DHS)
- ESF #9 - Urban Search and Rescue - Federal Emergency Management Agency (DHS)

- ESF #10 - Hazardous Materials - Environmental Protection Agency
- ESF #11 - Food Annex - Department of Agriculture
- ESF #12 - Energy - Department of Energy

The following table shows the relationship between the Federal ESFs and the Regional Emergency Operations Center (REOC) functions:

REOC Organization	Emergency Support Functions
Operations	
Fire & Rescue	Firefighting (ESF #4) Urban Search & Rescue (ESF #9)
Hazardous Materials	Hazardous Materials (ESF #10)
Law Enforcement & Coroners	
Medical & Health	Health & Medical Services (ESF #8)
Care & Shelter	Mass Care (ESF #6)
	Food (ESF #11)
Construction & Engineering	Public Works & Engineering (ESF #3)
Utilities	Energy (ESF #12)
Planning/Intelligence	Information and Planning (ESF #5)
Logistics	
Information Systems Communications Computer Systems	Communications (ESF #2)
Transportation	Transportation (ESF #1)
Personnel Procurement	Resource Support (ESF #7)

Figure 3-1 REOC – ESF Relationships

3.2 Planning A Successful Operation

An effective and efficient safety assessment operation must be planned in advance of implementation. Building Departments need to develop post-disaster operation plans that include:

- identifying all the post-disaster functions of the department;
- key personnel and the positions they will hold during the operation;
- process and procedures; and
- recovery operations.

Having the entire process thought out and documented before the event allows the staff to move directly into the post-disaster operation and frees management from having to develop an operational

plan during the operation. Included as Appendix A is a model post-disaster operations plan developed by the California Building Officials that covers personnel and the safety assessment work during the response. This model is intended as a guide for jurisdictions to use in developing their own plans.

The information presented in this section is provided as a planning guideline, not a specific requirement. Organizational structure and position descriptions are based on SEMS terminology. Each jurisdiction must establish the positions and operational requirements which best reflect the capabilities of the jurisdiction and the staff. A good additional tool to assist in the development of your operational plan will be your jurisdiction's emergency plan. The building department disaster operations plan should become an annex to the jurisdiction's emergency plan so it is available to all departments within the jurisdiction.

3.2.1 Identifying Post-Disaster Functions

Prior to developing any operations plan, all functions must be identified, defined, and placed into some form of chronology. A well-defined and detailed plan that addresses all functions of the department during an emergency or disaster will be an asset to the staff in ensuring an efficient and successful operation.

During an emergency or disaster, the department's day-to-day operations will be modified to account for the emergency conditions. However, to the extent possible, those day-to-day duties will still need to be performed. The emergency situation may not impact every citizen within the jurisdiction. They will have their expectations for continued permitting and construction activities.

Some of the department's disaster or post-emergency functions may include:

- Safety assessment to determine condition of damaged structures for continued occupancy;
- Developing and passing an ordinance that formally adopts placards;
- Printing a supply of placards that include the enabling ordinance number and the jurisdiction seal;
- Damage assessment to determine the total impact to the jurisdiction from the damage;
- Developing criteria for owners and tenants to gain access to UNSAFE structures to retrieve important and needed possessions;
- Defining imminent hazards and determining procedures for mitigating those hazards;
- Developing and passing an ordinance defining when placards can be removed;
- Process and procedures for owners to follow to change placards and develop repair documents;
- Establishing and implementing repair criteria;
- Implementing permitting and inspection procedures for the repair of damaged buildings; and
- Providing the public information on the various processes that must be followed to gain access to their buildings and complete repairs of the damage.

Most of the process, procedures, and information can be developed now, before the emergency, and

then implemented at the time of event. Probably the most important in this area will be to establish an alternate location to carry on response activities if the building in which the building department is located has been damaged. Without an alternate location pre-defined, staff will not know where to report if the main building has been damaged. Part of this consideration will be determining how you will get the needed equipment and supplies from the damaged facility to the alternate location.

Another area that will have significant importance to the overall recovery will be the development of repair criteria. For those events that are proclaimed emergencies by the Governor or declared emergencies or disasters by the President, the codes and standards for repair need to meet certain criteria so the repair work performed will be eligible for financial assistance. Basically, these standards must (reproduced from **Title 44, Code of Federal Regulations**):

1. Apply to the type of repair or restoration required (Standards may be different for new construction and repair);
2. Be appropriate to the pre-disaster use of the facility;
3. Be in writing and formally adopted by the applicant prior to the date of declaration or be a legal Federal or State requirement applicable to the type of restoration;
4. Apply uniformly to all similar types of facilities within the jurisdiction; and
5. For any standard in effect at the time of a disaster, it must have been enforced during the time it was in effect.

Additionally, these repair standards must provide "objective," not "subjective," triggers to determine the level of repair required. Further, the repair standards used must be developed and adopted prior to the occurrence of the event if State and Federal reimbursements on permanent repairs for jurisdiction owned buildings and structures is expected.

For the purpose of this program, we will look at the sections of the operational plan that lead up to and include the safety assessment process. The other functions included above are provided for discussion purposes and as a guideline for developing an effective operational plan.

3.2.2 Department Organization - Personnel and Positions

Once an event occurs, we must recognize that the day-to-day operations of the building department will alter significantly until the recovery is well on its way. This means that part or all of the staff will be working in new duties with different responsibilities. To compound the situation, your daily, non-disaster activities will need to be maintained. To minimize the impact on the department's operations, key disaster operation positions will need to be identified and individuals selected to fill those positions.

3.2.2.1 Management Staff

Once the event has occurred, and the building official is notified that buildings have been damaged, the building official will activate the Department Operations Center (DOC), operations plan, and establish his/her command staff. One of the advantages of the ICS structure is its ability to collapse and expand, as the situation requires. For the purpose of our discussions we will assume that this will be a large-scale operation and the entire structure will be activated. Figure 4-2 on the next page shows the basic structure.

The following are brief position descriptions for each of the positions shown:

- DOC Director is responsible for incident activities including the development and implementation of strategic decisions for approving the ordering and release of resources.
- Public Information Officer is responsible for the formulation and release of information about the incident to the news media and other appropriate agencies and organizations.
- Safety Officer is responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety Officer will correct unsafe acts or conditions through the regular line of authority, although the Officer may exercise emergency authority to stop or prevent unsafe acts when immediate action is required. The Officer maintains awareness of active and developing situations, approves the medical plan and includes safety messages in each incident action plan.
- Liaison Officer is the point of contact with cooperating Agency Representatives. This includes Agency Representatives from other agencies, *i.e.*, Red Cross, law enforcement, public works, engineering organizations, etc.
- Security Officer is responsible for the provision of safeguards needed to protect personnel and property from loss or damage at the Department Operations Center.

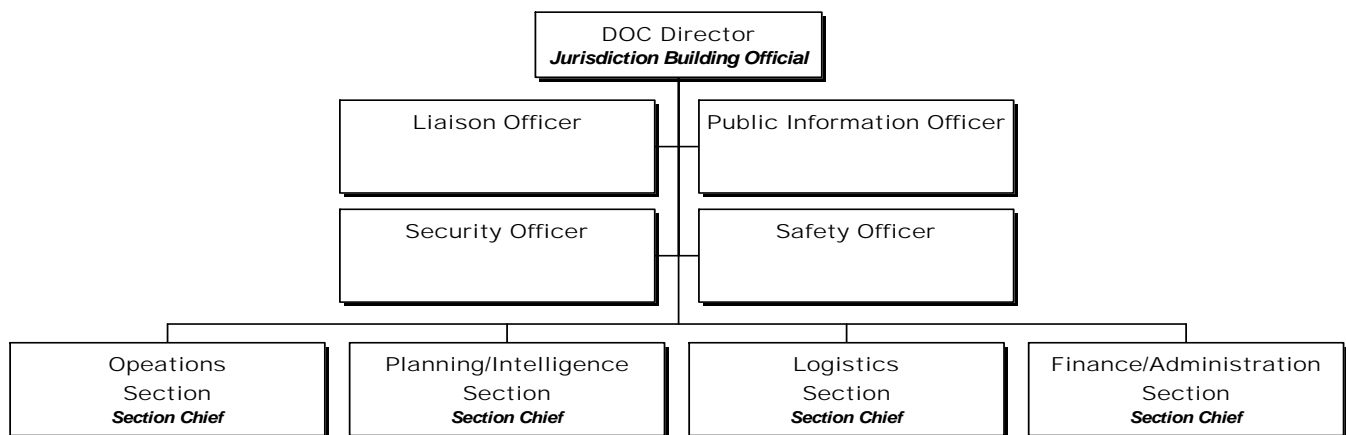


Figure 3-2 - Basic ICS Structure

3.2.2.2 Operations Section

Once the Operations Section Chief is appointed, he/she will perform a staff analysis to determine the level of staffing required. Figure 4-3 shows a typical Operations Section.

The position descriptions are as follows:

- Section Chief is responsible for the management of all operations directly applicable to the primary mission. The Operations Chief:
 - activates and supervises organization elements in accordance with the incident action plan; directs its execution;
 - requests and releases resources;
 - makes expedient changes to the incident action plan as necessary;

- reports changes to the action plan to the DOC Director.
- Assessment Processing Unit Leader is responsible for implementation of the portion of the incident action plan that relates to office support activities. The assessment processing activities for the Operations Section are in direct support of the Safety Assessment Branch.
- Safety Assessment Branch Coordinator is responsible for implementation of the portion of the incident action plan that relates specifically to the safety assessment operations and managing the staff. This individual could be someone assigned from the jurisdiction staff or the Response Team Leader of the responding resources as appointed at the State's staging area.

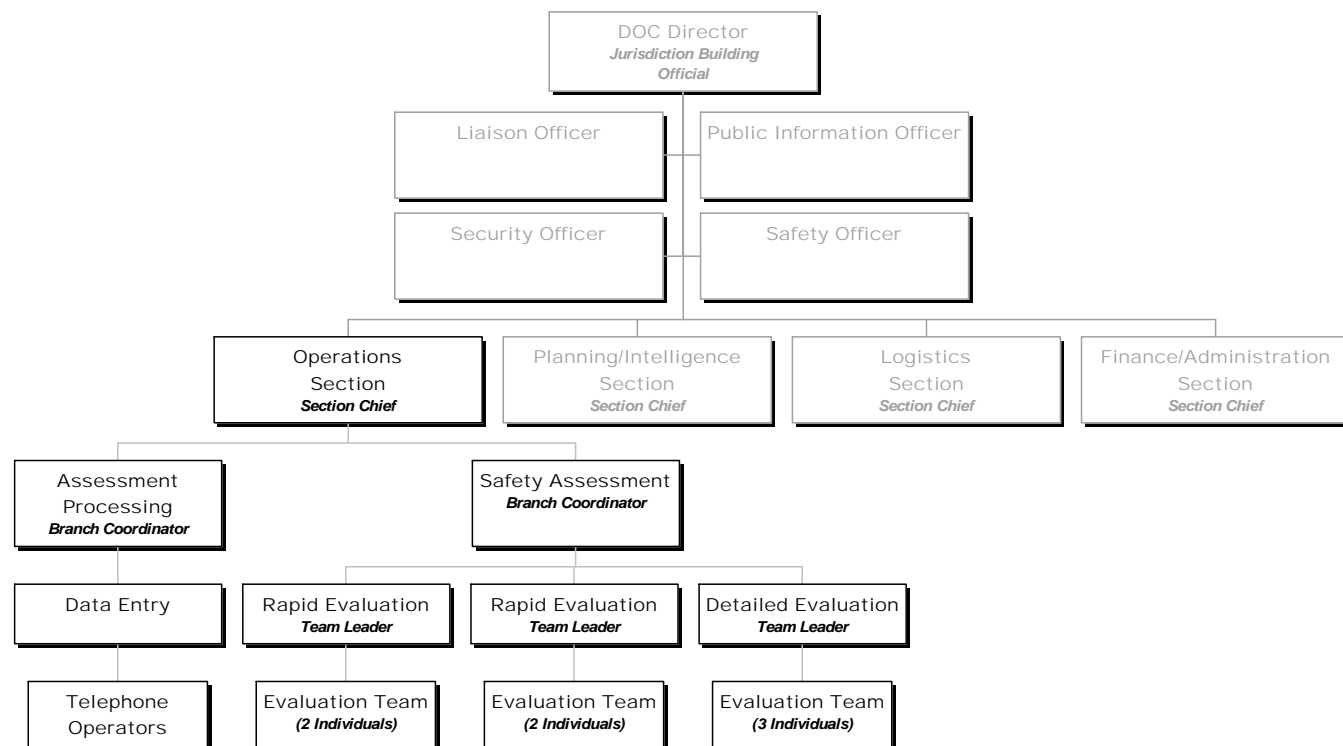


Figure 3-3 - Operations Section

3.2.2.3 Planning/Intelligence Section

The Planning Section is responsible for all the planning related to the operation including, but not limited to, the incident action plan, advance planning, and demobilization planning. The Planning Section is also responsible for conducting the incident action plan meetings at the end of each operational period as well as maintaining the documentation of the operation. Figure 4-4 on the following page shows a typical Planning Section organization.

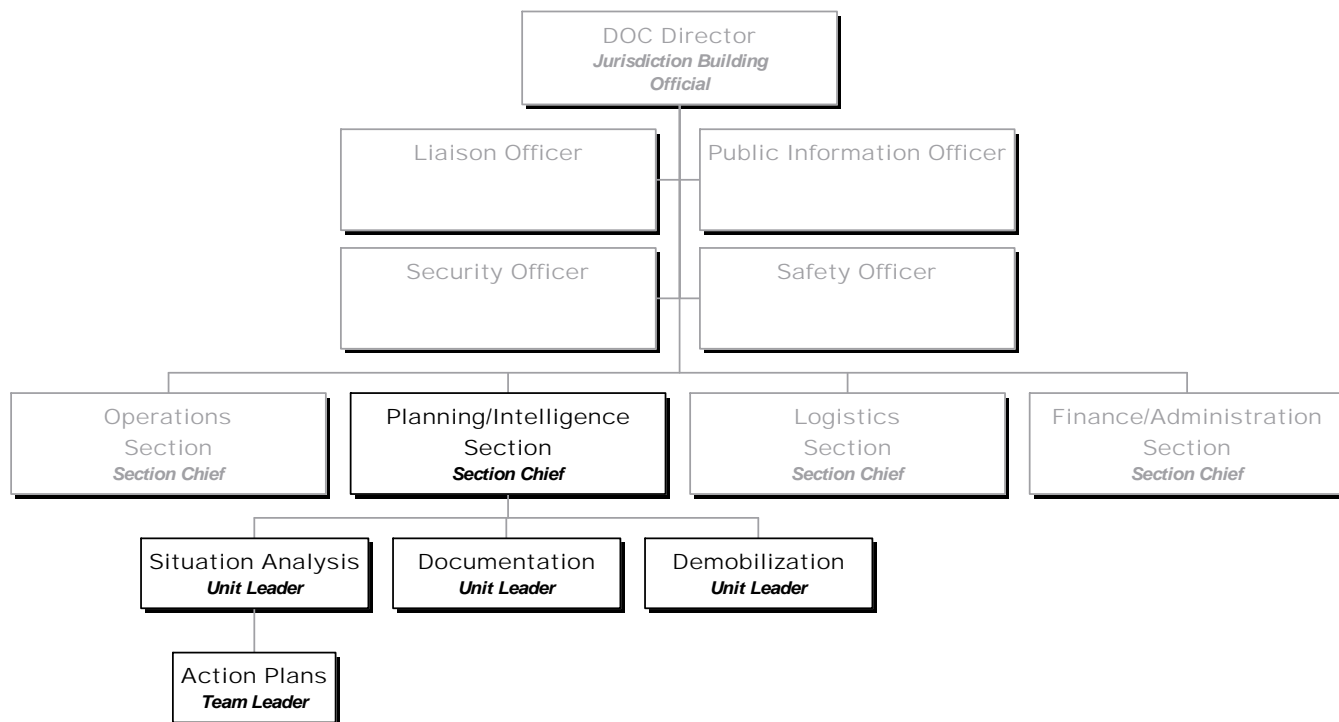


Figure 3-4 – Planning/Intelligence Section

The position descriptions are as follows:

- Planning/Intelligence Section Chief is responsible for the collection, evaluation, dissemination, and use of information about the development of the incident and status of resources. Information is needed to: 1) understand the current situation, 2) predict probable course of incident events, and 3) prepare alternative strategies and control operations for the incident.
- Situation Unit Leader is responsible for the collection and organization of incident status and situation information and evaluation, analysis, and display of that information for use by all the staff. Situation Unit is also responsible for conducting the incident action planning meetings at the end of each operational period and developing the incident action plan that shows all objectives of all sections for the next operational period.
- Documentation Unit Leader is responsible for: 1) maintaining accurate and complete incident files; 2) providing duplication services to incident personnel; and 3) packing and storing incident files for legal, analytical, and historical purposes.
- Demobilization Unit Leader is responsible for the preparation of the demobilization plan and assisting incident sections and units in ensuring that an orderly, safe, and cost effective movement of personnel and equipment is accomplished from the incident.

3.2.2.4 Logistics Section

The Logistics Section is responsible for providing all logistical support for the operation. They will order and dispense supplies and equipment; make arrangements for food and lodging; and order resources requested by other sections. Figure 3-5 shows a typical Logistics Section.

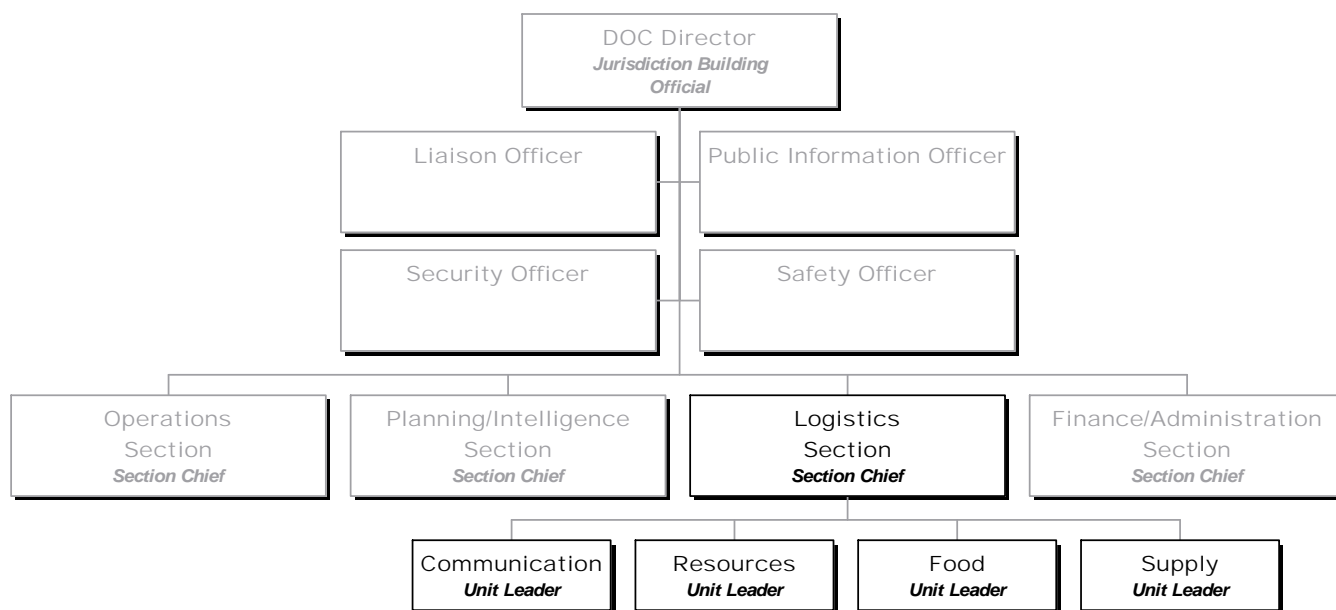


Figure 3-5 - Logistics Section

Position descriptions are as follows:

- Logistics Section Chief is responsible for providing facilities, services, and material in support of the incident. The Logistics Chief participates in development and implementation of the incident action plan and activates and supervises the branches and units of the Logistics Section.
- Communications Unit Leader is responsible for developing plans for: 1) the effective use of incident communications equipment and facilities; 2) installing and testing of communications equipment; 3) supervision of the incident communications center; 4) distribution of communications equipment to incident personnel; and 5) the maintenance and repair of communications equipment.
- Resources Unit Leader is responsible for: 1) establishing all incident check-in activities; 2) the preparation and processing of resource status change information; 3) the preparation and maintenance of displays, charts, and lists that reflect the current status and location of resources, transportation, and support vehicles; and 4) to maintain a master check-in list of resources assigned to the incident.
- Food Unit Leader is responsible for: 1) determining feeding requirements at all incident facilities; 2) menu planning; 3) determining cooking facilities required; 4) food preparation and serving; 5) providing potable water; and 6) general maintenance of the food service areas.

- Supply Unit Leader is primarily responsible for: 1) ordering personnel, equipment, and supplies; 2) receiving and storing all supplies for the incident; 3) maintaining an inventory of supplies; and 4) servicing non-expendable supplies and equipment.

3.2.2.5 Finance/Administration Section

The Financial and Administration Section is responsible for all cost analysis aspects of the incident including purchases, time recording, claims preparation, etc. Figure 4-6 on the following page shows a typical Finance and Administration Section organization.

Position descriptions are as follows:

- Finance/Administration Section Chief is responsible for all financial and cost analysis aspects of the incident and for supervising members of the Finance and Administration Section.
- Time Unit Leader is responsible for equipment and personnel time recording and for managing the commissary operation.
- Procurement Unit Leader is responsible for administering all financial matters pertaining to vendor contracts.
- Compensation and Claims Unit Leader is responsible for the overall management and direction of all Compensation and for Injury and Claims Specialists assigned to the incident.
- Cost Unit Leader is responsible for collecting all cost data, performing cost effectiveness analyses, providing cost estimates, and cost saving recommendations for the incident.

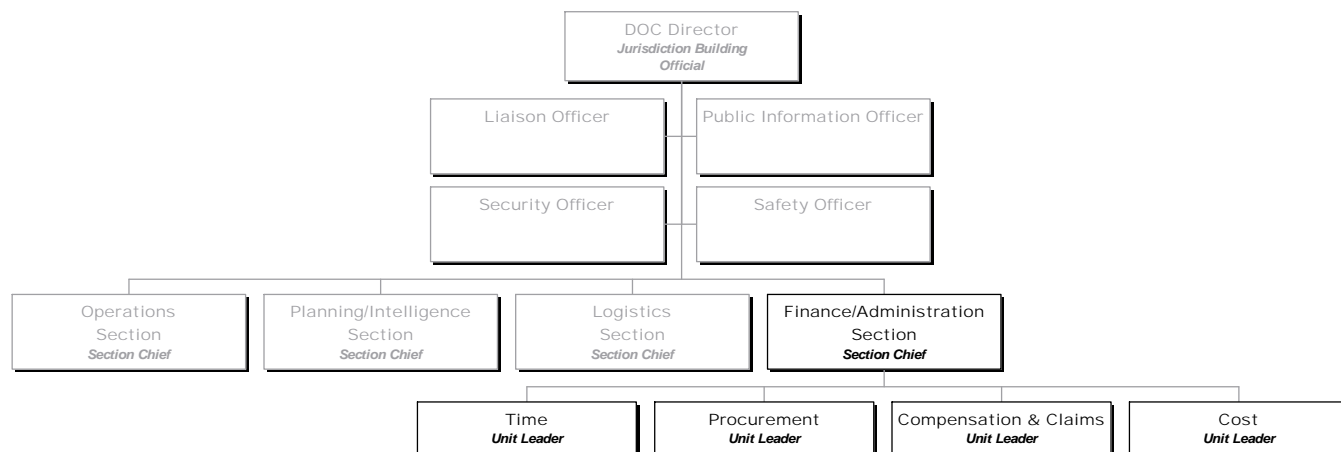


Figure 3-6 - Finance/Administration Section

3.2.3 Process and Procedures

This section of the operations plan outlines the step-by-step process that the jurisdiction will follow from identifying damaged structures through repairing or demolishing the structures, that is, the process of moving through response into recovery and completion of the recovery process.

Some of the procedures that should be considered are:

- establishing priorities,
- how the jurisdiction will approach the safety assessment process,
- performing the windshield survey,
- determining resources needed,
- performing the safety evaluations,
- procedures for changing placards based on engineering evaluations,
- securing possessions from UNSAFE buildings,
- plan check and permitting of repair projects, and
- project closeouts.

For the purpose of this training we will limit our discussion to those issues related to safety assessment. The recovery issues will be left to the jurisdiction.

3.2.3.1 Establishing Priorities

Laying out a successful operation begins with developing a general approach to the operation that guides management and staff in the first few hours of the operation. This general approach should remain somewhat flexible so as to deal with the specifics of the incident.

The initial pre-event steps are to identify all of the essential service facilities within the jurisdiction and where they are located. These are the facilities that need to be operational after the event and require inspection immediately. One approach to handling the essential service facilities would be to assign staff to a specific facility. It is their responsibility to respond immediately to the facility before reporting to the operations center. The individual is activated by the event—not by a call from the operations center. This approach allows the individual to become familiar with the facility before the event, which then expedites the inspection of the facility. The downside of this approach is that the jurisdiction can only assume a facility has been inspected and will not know for sure until the individual assigned to the facility reports back to the operations center. Unless the individual calls and indicates that they cannot respond, the jurisdiction does not know to send someone else to perform the initial inspection.

Another approach would be to prioritize the facilities based on the jurisdiction's and community's needs for the services provided. As staff report to the operations center, they are sent to the facility to provide the initial inspection. This ensures that all essential service facilities are inspected and management knows they are being inspected, but it can delay the initial inspections based on how fast individuals

can respond to the operations center.

While the essential service facilities are being inspected, the remainder of the inspection staff can begin the windshield survey to identify those areas where damage has occurred. This process can be aided by information obtained from the surveys performed by police and fire.

3.2.3.2 The Approach to Safety Assessment

A key part of the operational plan will be the approach taken to expedite the safety assessment process. Historically, the safety assessment process has not been planned. Developing the process before the incident allows management to take a proactive approach rather than a reactive one. One approach will be to work through the highest intensity areas with rapid evaluations in a "sweep" where individuals are assigned blocks and they simply inspect every building within that assigned area. Once one intensity area is complete, the next priority becomes the next lower intensity zone.

This becomes a highly viable approach through a program known as California Integrated Seismic Network (CISN). CISN is a cooperative agreement between USGS, California Division of Mines and Geology, and OES. Through the State's monitoring program actual ground motion recordings are read and shake maps developed within a few minutes of the event. These maps are then posted on the USGS website and can be used by a building department as a management tool in which to assign both windshield surveys and Rapid Evaluations.

Another approach would be to inspect facilities based on established priorities of the jurisdiction, that is, the types of facilities that will more rapidly move the jurisdiction into recovery. Under this approach OES recommends inspections be prioritized as follows:

- **Essential Facilities** – These are the buildings that are essential to the continued operation of the jurisdiction.
- **Commercial, industrial and office buildings** - these buildings represent the economic base of the community. The faster we can get the economy moving, the faster the jurisdiction can recover.
- **High-density residential structures** - these are typically hotels and motels that can be used for short- and long-term sheltering of victims.
- **Single family and low-density residential units** - It is important to inspect residences as rapidly as possible in order to restore the feeling of comfort and stability within the citizens. However, in a general sense these inspections can be somewhat delayed in order to get as many people back to work and to get their children back into schools as rapidly and safely as possible.

This approach is probably a more viable approach when an intensity zone includes a mixture of occupancies. This allows the jurisdiction to concentrate on those occupancies that will expedite the recovery. In the case where the highest intensity zones include a predominate type of occupancy, the process becomes more of performing a "sweep" type operation.

Included in the planning process are lifeline systems. These systems can be under the jurisdiction of special districts as in the case of utilities, or they are usually under the jurisdiction of the public works department. In those jurisdictions where the building department and public works are separate departments, close coordination is needed when developing the operations plan. For those jurisdictions where the two departments are combined, or one is a part of the other, the coordination becomes somewhat easier. When considering lifeline systems and facilities, working with Mercalli

Intensity zones may not be the most efficient manner in addressing the priorities. OES recommends the following priorities in dealing with lifeline systems and facilities:

- **Airports, Highways and Bridges** - these systems must be opened as soon as possible to expedite the movement of resources.
- **Reservoirs, water treatment plants, sewage treatment facilities** - these facilities affect a large segment of the population.
- **Pipelines and other utilities** - in cases where domestic and fire water lines are damaged, these facilities may have a higher priority than reservoirs and treatment facilities.
- **Dams** - the State of California Department of Water Resources has responsibility for all dams in California except those owned and operated by the U.S. Army Corps of Engineers or the Bureau of Reclamation. DWR has established criteria based on the amount of water being stored; consequently, dams that a local jurisdiction may have to evaluate are very small, possibly located on private property, and used for irrigation.

3.2.3.3 Performing the Windshield Survey

The local police and fire departments will initiate assistance to the public within minutes of the event. They are thus in a good position to provide vital information on where the damage has occurred.

The windshield survey is a process of traveling up and down the streets of the jurisdiction looking for damaged areas where individuals are likely to need assistance. As soon as the building department staff can mobilize, they need to begin their windshield survey that will identify those areas of the community that will need structure safety assessments.

A process for performing this survey should be developed and addressed within the department's operations plan. The survey should be performed with at least two individuals in each vehicle so one can drive and one can record information regarding location and number of damaged buildings within each area surveyed. The forms used to record this information should be simple and not require excessive detail. Additionally, they should be designed to be able to calculate quickly a very rough percentage estimate of the damage observed. This is the first of several estimates that will be developed.

Very early in the operation, elected officials will begin asking for these estimates. Using estimates impresses on these officials and the general public the magnitude of the event. In addition to the elected officials, the jurisdiction's Emergency Operations Center will also be requesting the information along with the numbers of damaged buildings. As the EOC receives the information, they will pass it to the Operational Area EOC, where it will be recorded and passed on to the State through the Regional Emergency Operations Center.

One of the easiest methods to use to develop these initial estimates is to record the number of damaged buildings within a block by general categories of damage, estimate the total area of damaged buildings, estimate an average percentage of damage, and use an average cost of new construction for the typical occupancy within the block.

Example: The 900 block of Main Street has 30 buildings on the block, 15 of those buildings sustained damage ranging from full collapse to moderate structural damage, the block is primarily commercial and retail occupancies. What is recorded might look like this:

900 Block Main Street: Total buildings 30 Damaged buildings 15
1 total collapse 5 partial collapse 6 severe damage 3 moderate damage
Estimated total area of damaged buildings 100,000 square feet;
approximate percentage of damage = 25%;
Average cost of construction \$100/square foot;
Cost = 100,000 sf x \$100/sf x 0.25 = \$2,500,000 of damage

When this information is turned in to the operations center, it should be marked on a jurisdiction map with some method of color-coding which tells the staff the phase at which the estimate was developed. This map can then be used to prioritize the safety assessment operation.

3.2.3.4 Determining Resources Needed

The Operations Section, will now need to determine the additional resources needed to perform safety evaluations in a timely manner. During past operations, more attention has been paid to recording information on numbers of buildings that have been posted than to the number of resources used and the time that it took to complete the evaluations.

During the safety assessment response to the 1994 Northridge earthquake more complete records were kept regarding numbers of posted buildings and resources used which have enabled OES to begin developing an approach to rapidly calculating the number of resources which will be needed. This will be a valuable tool for building officials to use in determining their resource needs.

The following spreadsheets show the information collected from the Northridge earthquake response and the analysis that was performed to develop the criteria for determining the number of resources required.

Table 3-1 - Assigned Resources

JURISDICTION	January												NO. OF DAYS PER CITY (1)	TOTAL RESOURCES BY CITY (2)	AVERAGE NO. OF RESOURCES ASSIGNED PER DAY (3)
	18	19	20	21	22	23	24	25	26	27	28	29			
City of Filmore	4	14	14	10					8				5	50	10.0
City of Santa Monica	12	12	12				10	10	10	10	10	10	9	96	10.7
City of Santa Clarita	10	10	10				20	20	20	20	20		8	130	16.3
City of Los Angeles	50	50	70	70	160	177	177	177	246	286	296	353	12	2112	176.0
TOTAL RESOURCES ASSIGNED BY DAY	76	86	106	80	160	177	207	207	284	316	326	363		2388	213

Table 3-2 - Placard Distribution

JURISDICTION	RED PLACARDS (4)	YELLOW PLACARDS (5)	GREEN PLACARDS (6)	TOTAL PLACARDS (7)	% OF RED & YELLOW PLACARDS BY CITY (8) (4)+(5) / (7)
City of Filmore	198	319	1,532	2,049	25.23%
City of Santa Monica	131	382	1,835	2,348	21.85%
City of Santa Clarita	15	66	674	755	10.73%
City of Los Angeles	1,690	5,715	17,742	25,147	29.45%
City of Culver City	30	124	484	638	24.14%
TOTALS	2,064	6,606	22,267	30,937	28.02%

Table 3-3 - Assessments per Day

JURISDICTION	ACTUAL DAYS PER CITY From (1) (9)	NUMBER OF ASSESSMENTS PER CITY (10) (2)+(3) / (8)	NUMBER OF ASSESSMENTS PER CITY PER DAY (11) (10) / (9)	NUMBER OF ASSESSMENT DAYS (12) (10) / (11)	AVERAGE NUMBER OF RESOURCES ASSIGNED PER DAY From (3) (13)	ASSESSMENTS PER PERSON PER DAY (14) (11) / (13)
City of Los Angeles	12	26,423	2,202		176.0	
City of Santa Monica	9	1,831	203		10.7	
City of Santa Clarita	8	289	36		16.3	
City of Filmore	5	1,845	369		10.0	
TOTAL		30,387	2,810	11	213	13.19

The following is a description of the calculation:

1. Identified damaged buildings during the windshield survey will most likely receive "RED" or "YELLOW" placards. Northridge records indicate that the total of RED and YELLOW placards represent approximately **30 percent** of the total number of inspections performed.
2. Records kept for Northridge included only the additional resources that a jurisdiction requested. The numbers of jurisdiction staff involved where unknown. Analysis of the data allowed OES to determine the average number of inspections performed per day. Knowing how many resources were provided to the jurisdictions, a weighted number of inspections per day per person was determined. Based on the data recorded, **approximately 13 inspections per "person" per day were made**. This number was determined by dividing the total number of inspections per day by the total number of resources provided.
3. The actual number of resources that will be needed will be based on the number of days in which to complete the process. Therefore, the building official needs to estimate a reasonable

number of days in which to complete the process. Depending on the size of the jurisdiction, a safety assessment operation would take anywhere from five to fifteen working days. Using this as a guide you will know how many resources to request. Most activations of the Safety Assessment Program have encompassed ten to fifteen inspection days. For Northridge, Program resources were used for 12 days.

Example: A jurisdiction has completed its windshield survey and determined that there were 1,200 damaged buildings with varying degrees of damage. Each of these buildings will need to be inspected as well as other buildings within the areas of damage and from public requests for inspections. Here is how you would determine the number of resources needed from the Safety Assessment Program.

Estimated number of inspections = $1,200 / 0.30 = 4,000$ inspections

Time to complete = 11 days

Number of resources needed = $4,000 / 12 / 13 = 26$

For this specific example, the jurisdiction's inspection staff would need to be augmented with 26 individuals from the Safety Assessment Program. Since some of these 26 individuals will only be available for 3 days at a time, plans should be made to request additional groups of 26 timed such that the jurisdiction has a constant level of resources.

3.2.3.5 Performing Safety Evaluations

The Operations Section Chief will assign jurisdiction inspection staff to begin Rapid Evaluations throughout the damaged area(s) based on the process established in the operational plan. Once the requested resources arrive at the building department operations center, the Finance and Administration Section will ensure **they sign in using the SAP ID number on their badge**, are given a time sheet, and any other administrative requirements have been handled. A SAP Evaluator Tracking Form is included at the end of this chapter for this purpose. The Operations Section will meet with the responding personnel and make appropriate assignments, provide the necessary briefing, provide a brief training session, and deputize the responding resources as Deputy Building Inspectors. The Logistics Section will issue the appropriate equipment and brief the individuals on lodging, food, and transportation. At this point, the teams are ready to move to the field and join the jurisdiction staff in performing Rapid Evaluations.

Once the Rapid Evaluations are complete, or nearly complete, the jurisdiction can begin the process of performing Detailed Evaluations of those buildings that require more time. Revisions made to the placards, specifically changing "LIMITED ENTRY" to "RESTRICTED USE," reduce the need to perform Detailed Evaluations. The original concept of the Detailed Evaluation was to deal with those buildings that were determined to be questionable during the Rapid Evaluation and give them a "RED" or "GREEN" posting. By using the "RESTRICTED USE" placard, a Rapid Evaluation team can spend a little longer evaluating the building in order to develop appropriate restrictions on continued use or occupancy and potentially eliminate the need for a Detailed Evaluation. In most cases, owners will be able to retrieve their possessions but not be able to fully occupy the building. Since we know the building is damaged, this allows the owner to move directly to retaining an engineer and performing an engineering evaluation.

However, there will be some buildings where Detailed Evaluations will be desired. In these cases, the Operations Section Chief will begin to develop detailed evaluation teams as soon as the need for these evaluations becomes known. By developing specific teams and assigning them only the Detailed Evaluations, there will be little or no impact on the remaining rapid evaluations.

As the evaluation teams go to their various assignments, their primary function is to assess the safety of buildings and facilities only for continued occupancy. Evaluation reports should not necessarily

reflect elements that should or could be repaired; however, it may be necessary in some cases. In other cases, if a certain element is repaired, the classification of the building may change. This too should be noted on the evaluation forms.

When an evaluation team completes its evaluation, the building should be posted at each exterior door. If the team has been deputized, use the official jurisdiction placard that best represents the results of your evaluation. If the team has not been deputized, either a local building inspector will have to place an official placard, or the evaluation team would place a generic placard. Placards should be placed at all normal entry points into the building or facility.

Once the evaluation teams complete their assignments, they return to the operations center where they review their evaluation forms with the team leader. This review ensures that the forms are filled in completely and any special conditions that must be addressed with the jurisdiction are noted. Once the review is complete, the team leader submits the forms to the Safety Assessment Unit Leader or their designee.

From a SEMS standpoint the following coordination is taking place simultaneously between the building department operations center and the jurisdiction's EOC:

- The DOC Director (building official) is coordinating with the EOC management to establish overall priorities and ensuring obtained information is relayed.
- The Operations Section is providing the obtained information to the Planning Section; determining their resource needs and providing that information to the Logistics Section; beginning their evaluation process with the essential services facilities; coordinating their field operations with the Operations Section in the EOC; and beginning to develop objectives for the next incident action plan.
- The Planning Section is documenting and collecting forms provided by the Operations Section; coordinating with the Planning Section in the EOC to establish the next operational period; assisting the DOC Director in developing the overall strategy and objectives; establishing the operational period for the building department operation; beginning development of the incident action plan; and looking to advance planning for demobilization and moving from response to recovery.
- The Logistics Section is coordinating with the Logistics Section at the EOC; coordinating with the Operations Section for needed resources; documenting and submitting their request(s) for additional resources to the Logistics Section at the EOC; arranging lodging and feeding for the staff and incoming resources; arranging for transportation; and making sure that all needed equipment (as outlined in the operation plan) is available and ready for issuance.
- The Finance and Administration Section is coordinating with the Finance and Administration Section at the EOC for purchasing requirements and appropriate purchase orders; ensuring that all personnel have properly signed in and been given time sheets for tracking purposes; and preparing to receive and process the incoming resources.

3.2.3.6 Procedures for Changing Placards

After the buildings have been posted, the owners need to retain engineers to perform engineering evaluations of the damaged structures. The primary function of the Engineering Evaluation is to develop repair recommendations. This evaluation provides the engineers with sufficient information to determine why the building was damaged. The repair program can then address the specific damage,

as well as provide appropriate mitigation to reduce the potential for the same damage in a future event.

Additionally, the Engineering Evaluation can be used to address the conditions of the original placards in two basic ways:

- The more involved evaluation might indicate that the original posting may have been too restrictive or not restrictive enough based on the actual damages; or
- The evaluation might identify temporary measures where, if implemented, the placard on the building could be changed to something less restrictive.

When writing your Building Department Plan, develop the process and procedures that will be required to change official placards. In past earthquakes jurisdictions have accepted signed and sealed letters from the engineer of record when the evaluation has shown that a different posting is more accurate. In the case of the identification of mitigation measures implemented to change posting, departments have accepted sketches showing the installation of the measure. When the change in posting is approved, remember that a representative of the jurisdiction will need to go to the building and change the placard to the appropriate one. Whatever process the department develops should be clearly spelled out in the Department Plan so the process can be implemented immediately upon the completion of the Safety Assessment process.

As a basic caution to the Building Department, the wording of the UNSAFE placard restricts building access to only those with official permission; this restriction is more definitive in the revised placard than in the earlier version. This restriction should not impede the efforts of professionals completing the Engineering Evaluations. The placard entry restrictions are addressed to the general public; engineers and contractors will require access so they can complete their Engineering Evaluation and install any necessary temporary stabilization measures. It is assumed that design professionals and contractors will take all necessary precautions to protect themselves during their work.

3.2.3.7 Securing Possessions From UNSAFE Buildings

One of the more difficult tasks will be determining the requirements for building owners to retrieve possessions from UNSAFE buildings. This is a task best performed during the planning stages when the situation can be thoroughly discussed and considered. This is also one of the critical responsibilities of the building department as owners and tenants will want and need to secure their belongings and records.

During the response to Loma Prieta in 1989, the City of San Francisco used some safety assessment "volunteers" as well as local engineers to provide escorts for owners and tenants so they could enter the buildings and retrieve their possessions. Time limits were established, which were generally 15 minutes. The escorts would lead the individuals through the safest portions of the buildings and let the owners and tenants know which rooms were safe enough to enter. Following the Loma Prieta response, this concept was thoroughly discussed and OES came to the conclusion that SAP resources were limited, and, as such, can not be used to provide escorts to building owners/tenants for possession retrieval. However, CALBO has decided they want to provide this service. In this case, the jurisdiction will need to request special resources through mutual aid, those CALBO members committed to safety evaluation will remain performing the evaluations.

In 1994 with the response to the Northridge earthquake, the City of Santa Monica used their fire department to retrieve possessions for individuals. This occurred in very hazardous apartment buildings where the tenants absolutely could not enter. Each tenant would describe where in their apartment the important possessions were kept. A firefighter would then enter the apartment and collect the items requested.

Since Loma Prieta and Northridge there still has not been much discussion on the best ways to get individuals into the buildings to retrieve possessions. But, we do know that it is imperative that procedures be developed to permit this activity. To help the jurisdictions to determine which buildings can be entered, the safety assessment evaluators will attempt to look at the condition of access in those buildings they determine to be UNSAFE for continued occupancy. They will be able to tell the department if the exit ways are clear, the stairs are stable and structurally able to be used, if there are any significant falling hazards, and what the level of lumination is in the corridors and rooms. With this information, the department will be able to determine if they will allow anyone to enter the building.

It will be up to the department to develop their procedures for how the building will be entered. The department will not be able to use the safety evaluators as escorts. The chances are those resources will be needed by some other jurisdiction to complete the safety evaluation process. Should you determine that escorts are the best way to get people into the buildings to retrieve possessions, those escorts will have to be jurisdiction personnel. They could be building inspectors, fire personnel, or law enforcement personnel.

One other consideration to include in the development of your process and procedures for possession retrieval will be proper identification of the owner or tenant. Remember also that those same individuals may have left their identification in the building when they vacated. While you want to have an easy procedure for securing possessions, you do not want to have a procedure that could lead to the wrong people entering buildings.

3.3 Jurisdiction Responsibilities

The operations plan needs to cover those items that are the responsibility of the jurisdiction when the safety assessment program is activated. Basically, these items are simply what it takes to support the resources while they perform their safety assessments. These responsibilities cover the support needs of the jurisdiction staff as well as those of additional resources that may be requested. Having these support functions addressed prior to the event simplifies the work of the logistics section and allows them to concentrate more fully on obtaining additional resources if the event so requires.

These support needs include:

- **Lodging, food and transportation.** Generally, this covers the primary support needs of incoming resources through the Safety Assessment Program. The best way to fulfill this is to make prior arrangements with local hotels by reserving blocks of rooms for the responding individuals. Food can be arranged through similar agreements with local restaurants. The more difficult part is providing transportation. For small jurisdictions where operations are confined to small areas, transportation can be provided with school or municipal busses that take the personnel into the appropriate area(s) in the morning and pick them up again in the afternoon. For larger jurisdictions it may be more appropriate for the responding resources to drive themselves into their assigned areas. In this case, the jurisdiction would be responsible for reimbursing them mileage to and from their home and around the jurisdiction. Costs incurred by the jurisdiction are eligible for reimbursement through Public Assistance under a Presidentially declared disaster.
- **Provide communications.** When possible, cell phones or radios should be provided to the evaluation teams. One way of minimizing this expense would be to provide the communications equipment to the team leaders and make sure that assignments are such that a team leader's teams are all working in the same area. Arrangements can be made with local cellular phone companies who might provide the necessary phones free of charge or at reduced rates. Again, expenses incurred to secure communication equipment can be eligible for reimbursement through Public Assistance under a Presidentially declared disaster.

- **Local inspectors to work with the evaluation teams.** Local inspectors from the building department are a valuable resource to the evaluation teams. Whenever possible, the jurisdiction should try to assign as many of their inspectors as available to work in the field with the teams. One good way of doing this would be to use these inspectors as team leaders.
- **Access to interiors of buildings.** The evaluation teams will need access to the interiors of the buildings when they are performing detailed evaluations. Access to the interior is helpful but not mandatory when performing rapid evaluations.
- **Equipment and supplies that may be needed.** The jurisdiction is responsible for providing the volunteers with any equipment and supplies that may be needed. Typically this would be evaluation forms, placards, tape, incident tape, maps, and any other logistical support that may be required. Placards and other critical field supplies must be kept in a location or locations that will be accessible after a disaster, including when essential buildings are rendered "Unsafe."
- **Reimbursement of individuals for out-of-pocket expenses related to evaluation work.** If the individuals are required to pay for any supplies or items needed to complete their evaluations, the jurisdiction is responsible for reimbursing these costs. In turn, these costs can become eligible for reimbursement through Public Assistance under a Presidentially declared disaster.

When a jurisdiction receives mutual aid assistance, the responding individuals are not necessarily familiar with the jurisdiction and the services provided. That is, they don't know the locations of hospitals, fire stations, police stations, or key utilities. As these individuals are performing their evaluations, they will be representing the jurisdiction to the public, and will most likely be the first public representatives, beyond emergency personnel, that the public can speak with. Therefore, the mutual aid inspectors and jurisdiction staff should have ready access to phone numbers and locations of key services that are available to the public. By addressing this issue in the operational plan, the basic list is always available and simply needs to have final phone numbers and locations added before it is printed and handed out. Some of the services to include on the list are:

- Location of first aid stations
- Location of emergency shelters
- Location of food and water distribution centers
- Emergency Agencies
- Utilities
- Locations of the Red Cross Disaster Service Centers. These are the locations where people can go to apply for Red Cross assistance programs.
- Teleregistration phone numbers for business owners, homeowners, and renters if the President has declared the event a disaster.

For businesses: 1-800-462-9029
1-800-462-7585 (TTY)

For homeowners and renters: 1-800-621-FEMA (1-800-621-3362)

3.4 Debriefing

The operational plan should layout the process for debriefing the evaluation teams. This should include where the debriefing will take place, when, and who will be involved. The debriefing is a part of the operation that may or may not be necessary, depending on the total magnitude of the event.

The purpose of the debriefing is to discuss the general condition of each building evaluated. It should always be used as a method for obtaining information that is not included on the evaluation form or to expand the information contained in the forms. The jurisdiction can ask questions at the debriefing regarding the conditions observed; however, evaluation teams are instructed not to offer opinions regarding demolition or repair. Additionally, evaluation teams should not provide opinions on how much time occupants should be allowed for possession retrieval in UNSAFE buildings.

Typical questions might be:

- *Was the building posted? If so, with what placard and why?*

This type of question allows the evaluation team to discuss in some detail what they observed without offering opinions.

- *Can you provide more information on the type and extent of damage?*

This type of question allows the evaluation team to completely discuss the specific damage to the facility. In turn, this will allow the jurisdiction to develop more information about specific buildings to complete the files.

In those cases where a building was deemed to be UNSAFE or to have severe restrictions on its use, typical questions might be:

- *What is the condition of access to the building or structure?*

The evaluation team can then discuss the condition of the various components affecting access, such as exits, corridors, or stairs.

- *Are there any immediate measures that can be taken to change the status?*

If it were appropriate to the conditions within the building, this information would appear on the evaluation form in the comments section. The evaluation team can then talk about specific hazards such as cracked and damaged parapets, or other types of falling hazards where, if removed, the condition could easily change.

3.5 Documentation

Documentation is an area that the SAP Coordinator will need to pay attention to. Early in the response the EOC will be asking for damage information so they can file their Initial Damage Estimate (IDE). This request will probably come through before the windshield surveys of the damaged area are completed. Based on information coming in from the field, you could extrapolate and give the EOC your best guess of what the windshield survey is showing. This estimate can be updated as soon as the windshield survey is completed. In Section 4.10.1, there is an example of how to do a rough estimate of damages based on what is found during the windshield survey.

Documentation does not stop with the updating of the IDE. Past earthquakes, especially the 1994 Northridge earthquake, have shown that collecting safety assessment information is very helpful to the

jurisdiction in determining repair procedures and shaping how the permitting process will work. Additionally, you can start building a historic database for comparing different earthquakes and identifying areas receiving repetitive damage. This historic database will also provide good research information to the engineering and scientific community.

It is highly recommended that jurisdictions record their safety assessment information for historical purposes, and to pass it on to the Operational Area, OES Region and the OES Statewide SAP Coordinator for their use as well. To assist in capturing this information, a sample form is provided on the following page that can be used for this purpose. The form can also be a simple spreadsheet that GIS operators can use with geocoding to develop maps.

At a minimum, all information shown except the repair estimates should be captured. This is information that appears on both the Rapid and Detailed Evaluation forms. Capturing estimated repair costs and actual repair costs allows the jurisdiction to develop better methods of developing these important cost estimates.

As the forms are turned in, one or more jurisdiction personnel can review the form and work with either the Assessor information or the jurisdiction's permit evaluation tables to develop the appropriate cost estimates. The forms can then be provided to clerical staff for entering into the database during the night shift. Each morning the updated database can be sent to the Operational Area, the OES REOC, and the OES Statewide SAP Coordinator.

Table 3-4 Safety Assessment Information - Sample

Jurisdiction	City of Lawson	Phone #	(707) 555-7743
Address	4221 Camino Alto Road	Fax #	(707) 555-7231
Contact Name	John Pires, Building Official	E-mail address	jpires@circle.net

Type (Res=R, Comm =C)	Street Address	City	Bldg Damage Description	Posted Placard	Comments
R	32 Mayberry Lane	Lawson	Off foundation, racked	Red	Entry is at side of house
R	36 Mayberry Lane	Lawson	Stucco & chimney cracked	Yellow	
R	40 Mayberry Lane	Lawson		Green	
C	224 Hispania Avenue	Lawson	Parapet damaged	Yellow	Front entry unsafe

SMALL GROUP ACTIVITY

IMPLEMENTING AN OPERATION

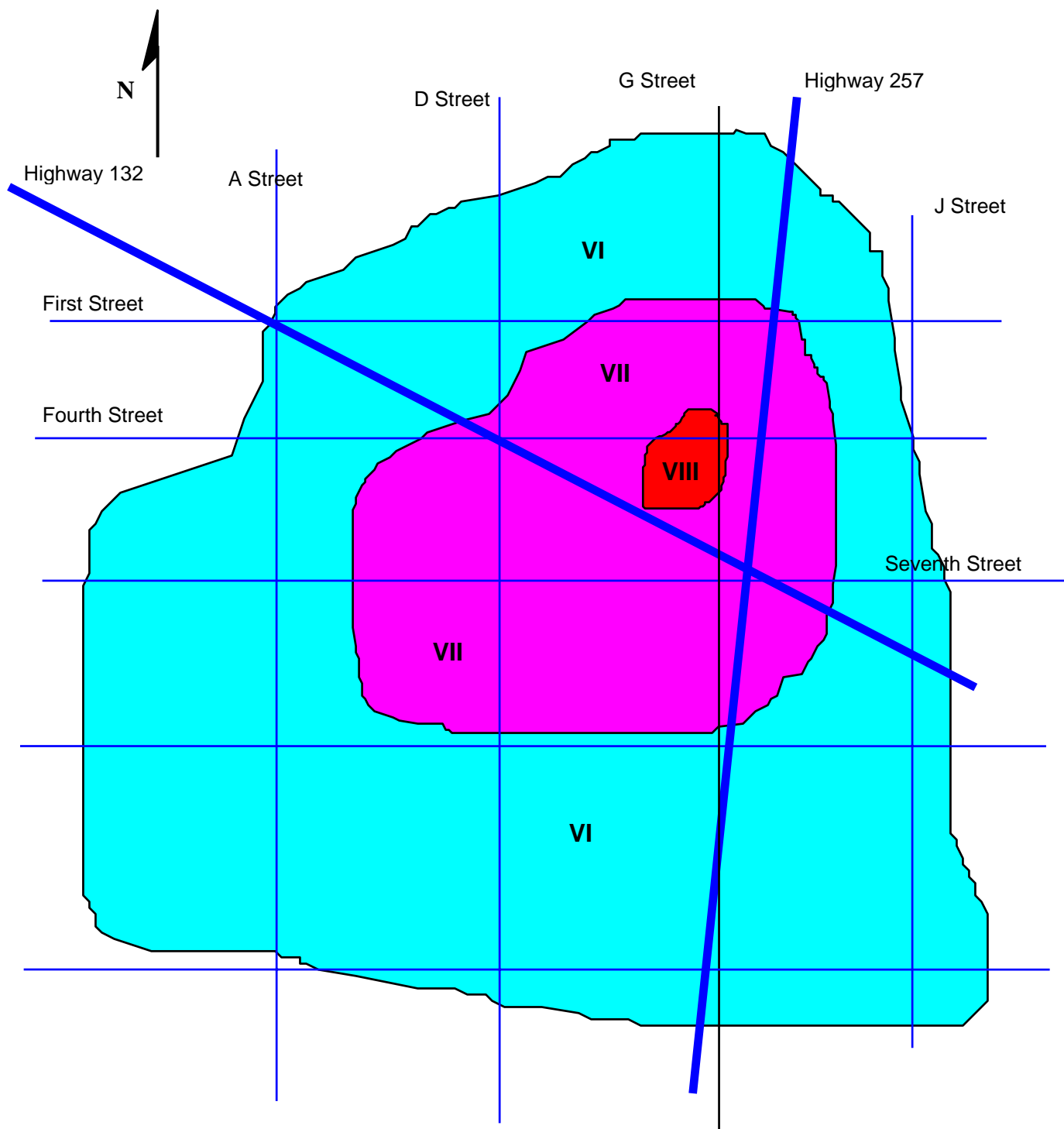
Your community has just been hit by a Richter magnitude 6.0 earthquake on a fault that runs through the city. The epicenter was located in the heart of your central business district. Staff has completed the windshield survey and results are as follows:

1. Damaged buildings = 1,440 (600 commercial-retail; 400 office; 200 apartment buildings; 100 single family residences; and 140 industrial buildings).
2. Total collapse = 10; Partial collapse = 50; Severe structural damage = 300; Moderate structural damage = 1080.

Your building department staff consists of one building official, two assistant building officials, 5 plan reviewers, one chief inspector, 15 full time inspectors, and appropriate clerical staff.

Using this information, the Mercalli Intensity Map on the following page, the description of the Incident Command System provided in this unit, and other information covered to this point, answer the questions following the map. The operational period has been defined as the next 12 hours.

Notes:



1. The Business District is located between First and Seventh Streets and D and G Streets.
2. The Industrial area is located along Highway 257 (primarily on the east side of the highway) south of Highway 132.
3. The remaining areas are residential.

Discussion Questions

1. Place yourself in the role of the building official. Immediately after the event what do you need to do to begin the operation?

2. You have been appointed as the Operations Section Chief. What is your recommendation to the DOC Director regarding the performance of safety evaluations?

3. You have determined that you do not have sufficient resources to respond to this emergency. How do you go about getting the resources you need? How many individuals will you request?

4. What functions would be your responsibility under Operations? How would you arrange your staff to perform these functions?

5. Establish your operational priorities and explain how you will accomplish the safety assessment goals for this event.

6. The operational period has been established as the next 12 hours. As the Operations Section Chief what will be your objectives during this period? (Objectives are a part of the overall incident action plan and should be attainable within the operational period.)

Notes:

UNIT 4 SAFETY ASSESSMENT PROCESS AND PROCEDURES

Unit 4 - Safety Assessment Process and Procedures

Overview

This unit presents the process and procedures for performing safety assessment and addresses the placards, forms, procedures, and criteria used in performing safety assessment.

Goal

Participants will become familiar with and understand the different types of evaluation, how to use the forms, and the definitions of the placards.

Objectives

Upon completion of this unit, participants will be able to:

- Describe the differences between the various placards; and
- Identify the various forms and properly fill them out.

4.0 Safety Assessment Process and Procedures

4.1 The Safety Assessment Program

Programs must be goal-oriented in order to be successful and the Post-Disaster Safety Assessment Program is no different. When on a response, evaluators need to know that local government has a specific goal in mind when they begin the safety assessment process. Many evaluators believe the goal of the process is to simply identify damaged structures. This is not the case. Identification of damaged buildings is a by-product of the process that will be very useful to local government. However, in accordance with the ***Post-Disaster Safety Assessment Plan***, the goal is:

- **to get as many people as possible back into their buildings as quickly and safely as possible.**

Evaluating and categorizing buildings and structures to reflect their condition for continued occupancy, which, in turn, assists local government greatly in its recovery and reconstruction efforts, accomplish this goal. The faster we can get people safely back into their buildings, the faster the economic base of the city can recover. Furthermore, the faster people can return safely to their homes, the financial strain on government of maintaining shelters is reduced, as is the emotional strain on the people.

Since 1989, when the Applied Technology Council presented ATC-20 ***Procedures for Postearthquake Safety Evaluation of Buildings*** and the companion field manual ATC-20-1, two additional publications have been developed by ATC: ATC-20-2 ***Addendum to the ATC-20 Postearthquake Building Safety Evaluation Procedures***, and ***ATC-20-3 Case Studies in Rapid Postearthquake Safety Evaluation of Buildings***. These four publications well define the process and procedures for determining the safety of buildings for continued occupancy. Though the criteria presented in these publications are based on earthquake events, the concepts and definitions apply to any type of event. As time goes on, the Safety Assessment Program will be activated for any type of event, emergency, or disaster that impacts the integrity of structures.

In 1992, OES published the state plan on safety assessment known as the ***Post-Disaster Safety Assessment Plan***. Where the ATC-20 publications define the process, procedures, and criteria for safety evaluation, the plan provides local government guidance on how to access the resources of the Safety Assessment Program available to assist in the safety assessment process.

4.2 Placards Used for Safety Assessment

The ATC-20 procedures are based on a three-placard system. These placards are intended to convey to the owner and/or tenants of a building the condition of the building in relation to continued occupancy. The selection of the appropriate placard is determined by performing either a rapid or detailed evaluation with occupancy the main criterion. The evaluation performed as part of the safety assessment process is not sufficient, in most cases, to determine how to repair the observed damage or whether it is economically feasible to repair it. The evaluation is only sufficient to determine whether or not the building can be occupied.

ATC-20 introduced the three original placards: INSPECTED, LIMITED ENTRY, AND UNSAFE, which are also color coded green, yellow, and red, to easily identify their meaning. These placards were based on the original placards developed by SEAOC and OES in the late 1970s. The first use of the ATC-20 placards was during the Loma Prieta response in 1989 within the San Francisco area. At the same time, the original OES placards were used within the Santa Cruz area. This provided a good test of the two similar sets of placards.

After Loma Prieta there was much discussion on the placards relating primarily to the LIMITED ENTRY concept. This resulted in the Federal government, through FEMA, funding the Applied Technology Council (ATC) to review the placards, forms, and procedures of ATC-20 in light of the experiences of Loma Prieta. ATC was to make modifications as necessary and provide additional information on the process that was not included in the original publication. The main accomplishment of the new publication, ATC-20-2, was the development of new placards which more clearly define the condition of a building for continued occupancy and new evaluation forms intended to provide better information to justify the selection of the appropriate placard.

Between the publication of the original ATC-20 and the subsequent publication of the revised forms and placards in ATC-20-2, many local governments have printed large numbers of the original placards to have available when needed. This means that for some time we are likely to be using the new placards in some jurisdictions and the old placards in others. Therefore, this course will look at both sets of placards to familiarize you with their use and meaning.

4.2.1 Inspected (Green)

The following is a representation of the original INSPECTED placard.

INSPECTED	
NO RESTRICTION ON USE OR OCCUPANCY	
<p>This structure has been inspected (as indicated below) and no apparent structural hazard has been found. Report any unsafe conditions to local authorities; reinspection may be required.</p>	<p>Date: _____ Time: _____</p>
<p><input type="checkbox"/> Inspected Exterior Only</p>	<p>This facility was inspected under emergency conditions for:</p>
<p><input type="checkbox"/> Inspected Exterior and Interior</p>	<p>_____ (Jurisdiction) on the date and time noted.</p>
<p>Facility Name and Address: _____ _____</p>	<p>Inspector ID / Agency: _____ _____</p>
<p>Do Not Remove this Placard until Authorized by Governing Authority.</p>	

The primary change in this placard is found in the title and reflects the resolution of legal concerns that several jurisdictions brought forward. The original placard indicated that there was **NO RESTRICTION ON USE OR OCCUPANCY**. According to some jurisdictions' legal counsel, this created severe problems when the placards were posted on a building and considered as official and legal placards. According to counsel, this placard indicates that the owner of the building can change the occupancy category or the use of the building without the approval of the building department. The intent of the placard was that the building could be reoccupied as it was before the event. To address this concern, ATC-20-2 presented the new INSPECTED placard removing the phrase of concern and replacing it with **LAWFUL OCCUPANCY PERMITTED**.

Second, a Comments Section has been added so that important information can be relayed to the occupant regarding the condition of the structure. This placard does not mean the building was not

damaged. It simply means that any damage that occurred does not represent a hazard to the occupants. The Comments Section is intended to provide a means of indicating to the owner that damage which must be repaired. Information that appears in the Comments Section of the placard must also appear in the Comments Section of the evaluation form.

The third revision is the addition of a caution statement relating to aftershocks. This is intended to let the occupant know that the building may have to be reinspected after a large aftershock. The addition of this caution statement tends to limit the use of the placards to earthquake events only. However, for other types of events, the owner can ignore the caution statement. The final change is a wording change to the bottom of the placard regarding the removal of the placard.

The following is a representation of the revised INSPECTED placard.

INSPECTED	
LAWFUL OCCUPANCY PERMITTED	
This structure has been inspected (as indicated below) and no apparent structural hazards have been found.	Date: _____ Time: _____
<input type="checkbox"/> Inspected Exterior Only	(Caution: Aftershocks since inspection may increase damage and risk.)
<input type="checkbox"/> Inspected Exterior and Interior	
Report any unsafe condition to the local authorities; reinspection may be required.	This facility was inspected under emergency conditions for:
Inspector comments:	_____ (Jurisdiction)
_____ _____ _____ _____	
Facility Name and Address:	Inspector ID / Agency
_____ _____	_____ _____
Do Not Remove, Alter or Cover this Placard until Authorized by Governing Authority	

The definition of the INSPECTED placard is:

- No apparent hazard found;
- Repairs may be required;
- Lateral load capacity has not been significantly decreased;
- Vertical load capacity has not been significantly decreased;
- Lawful occupancy is permitted.

In looking at the criteria it needs to be pointed out that "significantly decreased" is a subjective criterion. There is no scale by which to measure "significant." One must use judgment as to the impact of potential damage on the capacity of the lateral force and vertical load systems. Such judgment comes from experience in designing or reviewing designs of the systems.

4.2.1.1 Example of the Use of the INSPECTED (Green Placard)



Figure 4-1 - Home - Landers/Big Bear Earthquakes, 1992

Figure 4-1 shows a home that has been damaged locally in that the carport has collapsed. There was no damage to the home and no threat to the occupants. The carport represents only a minor hazard in its current condition. The house could be posted **INSPECTED** (or Green) since there is no direct hazard to the occupants. The area around the carport could be posted as an "area unsafe." On the placard, in the Comments Section, a notation that once the carport is taken down the area unsafe condition could be removed would be appropriate. The same notation would also appear on the evaluation form. If, for example,

the carport had not fallen but was still marginally attached to the house, the condition of the structure could change to **LIMITED ENTRY** or **RESTRICTED USE** (yellow).

The restriction on occupancy would be to not occupy rooms on the carport side of the home until such time as the carport was removed or repaired. The damage to the carport is a falling hazard that poses a threat to anyone in the vicinity of the carport. The hazard would be outside the structure and should be posted as "area unsafe."

4.2.2 Limited Entry and Restricted Use (Yellow)

The following is a representation of the original LIMITED ENTRY placard:

LIMITED ENTRY	
OFF LIMITS TO UNAUTHORIZED PERSONNEL	
Warning: This structure has been damaged and its safety is questionable. Enter only at own risk. Aftershocks or other events may result in death or injury.	Date: _____ Time: _____
Restrictions on use:	This facility was inspected under emergency conditions for:
<input type="checkbox"/> Entry for emergency purposes only	_____ (Jurisdiction)
<input type="checkbox"/> Other	on the date and time noted.

Facility Name and Address:	Inspector ID/Agency
_____	_____
_____	_____
Do not Remove this Placard until Authorized by Governing Authority.	

As previously mentioned, the **LIMITED ENTRY** placard resulted in more questions and confusion than the other two placards. The concept of "limited entry" was questioned from the standpoint of its definition. The ATC-20 document defines limited entry as:

- Dangerous condition believed to be present. Entry by owner permitted only for emergency purposes and only at own risk. No usage on continuous basis. Entry by public not permitted. Possible major aftershock hazard.

LIMITED ENTRY was intended for those buildings identified during a rapid evaluation that were not obviously safe or unsafe. The definition simply addresses the hazard associated with this classification of damaged building. It does not tell you what "limited" means in the context of occupancy. It was intended that this placard be used for those buildings that required detailed evaluation to adequately determine their condition for continued occupancy.

There was also concern over the warning statement, especially the sentence, "Enter only at own risk." There needs to be some level of control over individuals entering damaged buildings. Remembering that this placard was to be used to denote buildings requiring detailed evaluations, allowing entry at the individual's risk could lead to people entering UNSAFE buildings with no restrictions.

Another area of confusion was the boxes for "Entry for emergency purposes only" and "Other." In this case, what constitutes emergency purposes? The intent for this placard was that the evaluators would note, on the placard, what restrictions were being placed on continued occupancy. Ideally, a building that had a life safety hazard in one portion of the building only, could receive a LIMITED ENTRY posting with a notation that the damaged area could not be occupied. Also, this placard could be used

for those structures that could not be occupied for a variety of reasons, but did not pose a significant threat to anyone. In this case, the owner or tenant could enter the building unrestricted to retrieve business records and possessions.

To adequately address these questions it was decided to replace the **LIMITED ENTRY** category with **RESTRICTED USE**. The term "restricted use" is clearly understood by everyone. The concept behind this placard is that the building has been damaged, but portions of it may be occupied, or the damaged portion is stable and the owner should have free access to retrieve possessions as needed. This placard now provides space to briefly explain the damage and then place appropriate restrictions on how the building is occupied. These restrictions may range from allowing entry only to retrieve possessions to restricting occupancy to only certain rooms. This placard is now more representative of the goal of the program. During Loma Prieta and more recent events, we found that more yellow placards are posted than **UNSAFE** or red placards. These buildings were not in a "questionable" condition. It was a function that the damage present was such that full occupancy could not be allowed, but there was no need to totally disallow entry.

The concept of possession retrieval is a major concern. After Loma Prieta some jurisdictions were looking to the safety assessment evaluator to establish time lines for individuals to enter damaged buildings to retrieve possessions. This placed the evaluator in the awkward position of trying to decide if 15 or 30 minutes was an acceptable risk. Now, through the use of **RESTRICTED USE**, we can eliminate that problem by allowing for possession retrieval on the placard. Permission is not needed from the jurisdiction.

During the development of the publication ATC-20-2, two examples of a RESTRICTED USE placard were developed. Since no strong consensus could be reached on either example, they were both included.

RESTRICTED USE	
Caution: This structure has been inspected and found to be damaged as described below: _____ _____ _____ _____	Date: _____ Time: _____
	(Caution: Aftershocks since inspection may increase damage and risk.)
Entry, occupancy and lawful use are restricted as indicated below: _____ _____ _____ _____	This facility was inspected under emergency conditions for: _____ (Jurisdiction)
Facility Name and Address: _____ _____	Inspector ID/Agency _____ _____
Do not Remove, Alter or Cover this Placard until Authorized by Governing Authority	

RESTRICTED USE

Caution: This structure has been inspected and found to be damaged as described below:

Date: _____
Time: _____

(**Caution:** Aftershocks since inspection may increase damage and risk.)

Entry, occupancy and lawful use are restricted as indicated below:

- ☐ Do not enter the following areas: _____

- ☐ Brief entry allowed for access to contents: _____
- ☐ Other restrictions: _____

This facility was inspected under emergency conditions for:

_____ (Jurisdiction)

Facility Name and Address:

Inspector ID/Agency

**Do not Remove, Alter or Cover this Placard
until Authorized by Governing Authority**

The criteria for this placard are:

- The building has been damaged but may or may not be habitable;
- There may be a falling hazard present in part of the structure;
- There may be damage to the lateral force and/or vertical load resisting systems, however, they are still able to resist loads;
- Occupancy is permitted in accordance with noted restrictions.

4.2.2.1 Examples of the Use of the LIMITED ENTRY or RESTRICTED USE (Yellow) Placards

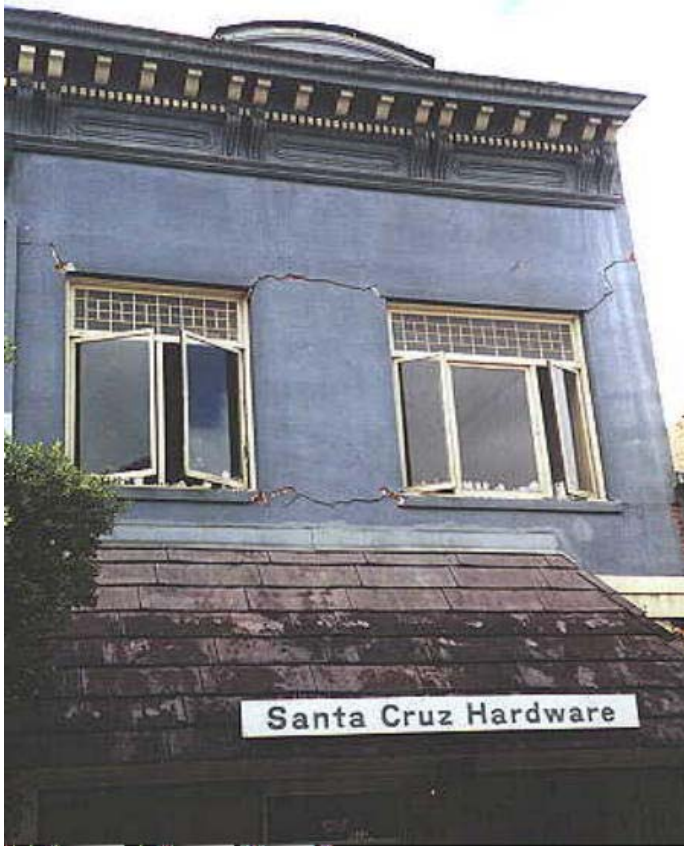


Figure 4-2 - Commercial Building - Loma Prieta Earthquake, 1989



Figure 4-3 - Loma Prieta Earthquake, 1989

Figure 4-2 shows a condition that represents a decrease in the lateral capacity of the wall. However, this condition is not necessarily a significant decrease in that the piers are still able to resist forces without collapsing by rocking on their base. From a safety assessment standpoint, this is a serious condition but not one that would preclude entry to the building for possession retrieval. Consideration should be given to restricting access to this front portion of the building until the wall can be stabilized.

Figure 4-3 shows damage as a result of pounding of different height buildings. The damage seen in the brick veneer occurs just at and below the floor line. The broken windows are also an indication of the level of motion experienced by the building. If the evaluation were a rapid evaluation (discussed later in this unit) the most appropriate placard would be **LIMITED ENTRY** or **RESTRICTED USE**. Due to the potential for damage to the support of the floor framing, initial restrictions on occupancy would be severe in that no entry into the area around the damage would be permitted, and access to other parts of the structure would be for possession retrieval only. A detailed evaluation, where access to the interior would be provided, may show little or no damage to the support of the floor framing. In this case the restrictions could be modified to provide free access, or the condition of the building could change to **INSPECTED**.

4.2.3 Unsafe (Red)

The following is a representation of the original UNSAFE placard:

UNSAFE DO NOT ENTER OR OCCUPY	
Warning: This structure has been seriously damaged and is unsafe Do not enter. Entry may result in death or injury.	Date: _____ Time: _____
Comments: _____ _____ _____ _____ _____	This facility was inspected under emergency conditions for: _____ (Jurisdiction) on the date and time noted.
Facility Name and Address: _____ _____	Inspector ID/Agency _____
Do Not Remove this Placard until Authorized by Governing Authority	

Of the three original placards, the original **UNSAFE** placard needed the least amount of revision. The big problem with this placard was that the public believed that an **UNSAFE** placard meant that the building had to be demolished. This is not true. Most buildings can be repaired. The repair-demolition issue usually boils down to one of economics. As an example, San Francisco had 350 red-tagged buildings after Loma Prieta, but only 50 of those buildings were demolished. Most of the demolition resulted as a decision of the owner based on economic reasons. The **UNSAFE** placard is used when there is an immediate risk associated with entry, use, or occupancy.

The major change in the placard was to add the phrase "**This placard is not a demolition order.**" Beyond this, the other changes were some text changes that more clearly indicate that the building has been inspected and found to be unsafe and that a brief description of the damage is required. The placard further requires written authorization from the jurisdiction for the owner or tenant to enter the building. This statement allows entry for possession retrieval when it is deemed appropriate by the jurisdiction. Further, it allows the building owner to mitigate the hazard in a manner acceptable to the local building authority in order to have access to the building.

The following is a representation of the revised UNSAFE placard:

UNSAFE	
DO NOT ENTER OR OCCUPY	
(THIS PLACARD IS NOT A DEMOLITION ORDER)	
This structure has been inspected, found to be seriously damaged and is unsafe to occupy, as described below:	Date: _____ Time: _____
_____	This facility was inspected under emergency conditions for:
_____	_____
_____	(Jurisdiction)

Do not enter, except as specifically authorized in writing by jurisdiction. Entry may result in death or injury.	
Facility Name and Address:	Inspector ID / Agency:
_____	_____
_____	_____
Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority	

The criteria for the use of this placard have not changed from ATC-20. The placard indicates that one or more of these conditions are present:

- There is extreme hazard and the building may collapse;
- There is imminent danger of collapse from an aftershock;
- There is a significant decrease in lateral and/or vertical load capacity; and
- The building is unsafe for occupancy or entry except by authorities. In this case authorities includes engineers and contractors who need access to the building to develop stabilization methods as well as repair designs.

4.2.3.1 Examples of the Use of the UNSAFE (Red) Placards



Figure 4-4 - Loma Prieta Earthquake, 1989

The condition shown in Figure 4-4 can be considered as a significant decrease in lateral capacity. This picture was taken as the building was being repaired and emphasizes the cracks in the wall piers. These cracks are a result of diagonal tension in the pier from in-plane lateral forces the wall was subjected to. This type of cracking is commonly referred to as “shear cracking.”

What is important to note is that this is a good example of an **UNSAFE** structure that did not need to be demolished. The **UNSAFE** designation relates solely to continued occupancy of the structure.



Figure 4-5 - Landers/Big Bear Earthquakes, 1992

Figure 4-5 shows an obviously **UNSAFE** structure from the Landers/Big Bear earthquakes that experienced a partial collapse of the building wall. This picture also shows significant problems in relation to the pool. This structure is located in Big Bear near the epicenter of the Big Bear earthquake. Vertical ground motion could have pushed the pool upward or sufficient amounts of pool water could have been “sloshed” out of the pool and into cracks in the surrounding slab causing the pool to float and the surrounding slabs to subside.

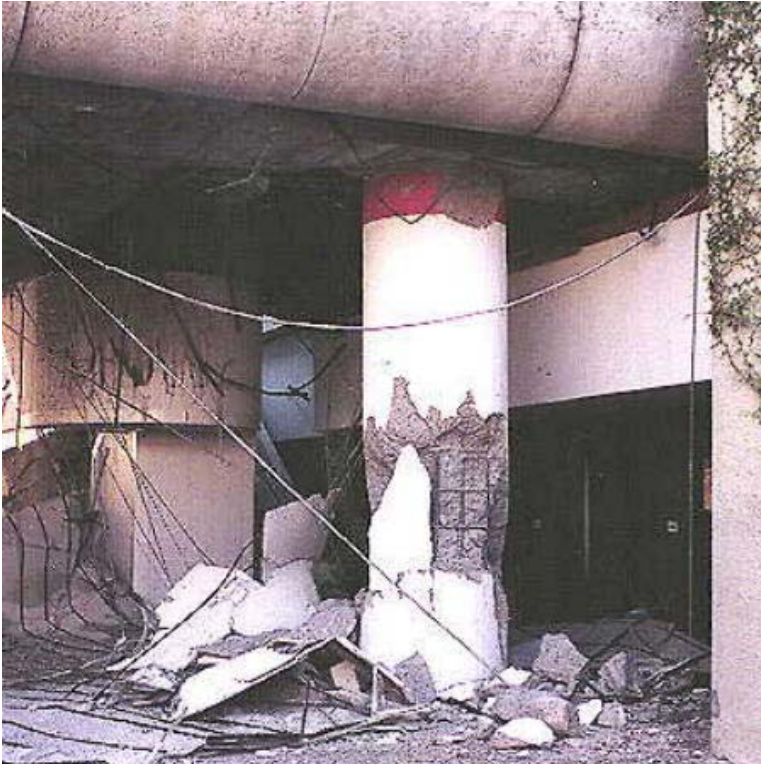


Figure 4-6 - Department Store - Northridge Earthquake, 1994

Figure 4-6 shows a large concrete column supporting a bridge between the parking structure and a department store that was damaged by the Northridge earthquake. The plaster soffit has also failed and is lying on the ground blocking easy access to the department store. The damage to the column appears to be spalling of the concrete cover that probably has not significantly reduced the vertical load carrying capacity of the column. Looking at the thickness of the concrete cover, one can conclude that the column size was for appearance not load capacity. Additionally, the plaster soffit is on the ground so there is no falling hazard. The initial view of the damage could lead one to believe that it looks worse than it really is. Repairs are required, but there has not been a significant loss of capacity.



Figure 4-7 - Department Store - Northridge Earthquake, 1994

Figure 4-7 is a closer look at the column. Here we see two significant items of concern: 1) permanent deformation of the vertical reinforcing; and 2) significant cracks through the core of the column. The deformation in the column shows that a potential P-Delta condition exists which could cause continued damage until such a time as the column is shored. The large crack in the concrete core indicates that there has been a decrease in the lateral capacity of the element. The existence of both of these conditions is sufficient to post the structure as **UNSAFE**.



Figure 4-8 - Loma Prieta Earthquake, 1989

There are times when a building is obviously unsafe and individuals need to be kept away from the area around the building as well as from the building itself. In this case the **AREA UNSAFE** concept should be used. Figure 4-8 shows an example of this condition. The building is obviously unsafe as a result of a portion of the wall from the adjacent building falling through the roof. There is no question about the condition of the building. However, the fact that a portion of the wall fell indicates that the rest of the wall is more than likely unstable and could come down during an aftershock. Therefore, the desire is keep people well away from both buildings. Using the **AREA UNSAFE** designation in combination with some form of barricade will provide a reasonable level of protection until the hazard can be addressed.



Figure 4-9 - Landers/Big Bear Earthquakes, 1992

The Landers/Big Bear earthquakes presented geologists and seismologists tremendous opportunities to study surface faulting conditions. From the standpoint of the Safety Assessment Program, surface faulting can constitute an **UNSAFE** condition if the fault trace is "close" to the building, passes under the foundation, or occurs next to a slope. There are no clear criteria for "close;" this will depend on the judgment of the evaluator. Fault traces passing under a building can lead to differential settlement and damage to foundations that is not readily visible. Traces located next to a slope (either at the top or the toe) can lead to a later failure of the slope resulting in a landslide.

4.3 Evaluation Process

As discussed with the placards, ATC-20 has defined a three-step evaluation process. The Safety Assessment Program will be involved in only the first two of these evaluations.

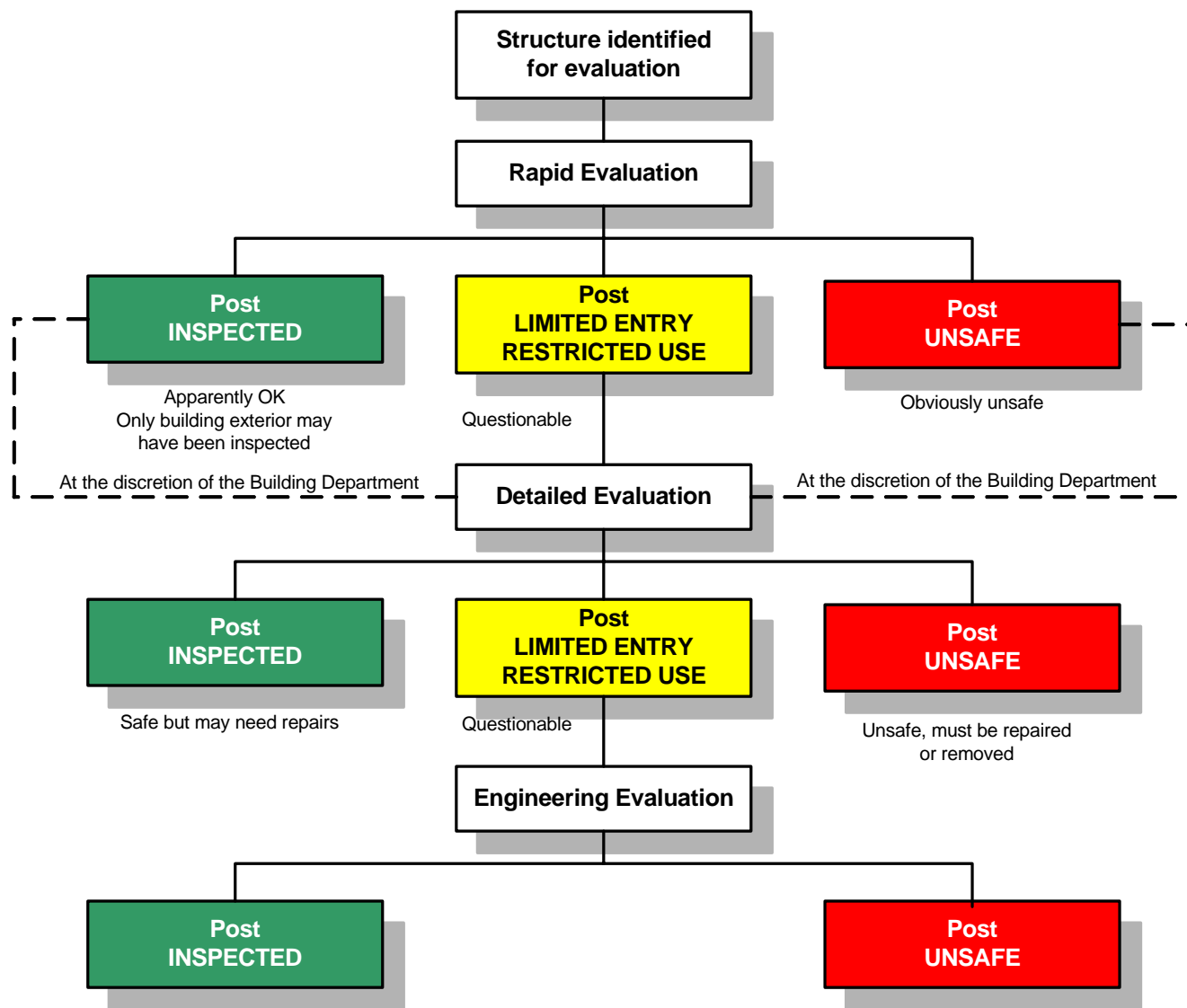


Figure 4-10 - Process Flow Chart

The three types of evaluations are defined as:

- **Rapid Evaluation** - where buildings are rapidly inspected, spending approximately 10 to 20 minutes per building. The intent of this level of evaluation is to quickly identify and post the obviously safe or unsafe structures. If access to the interior is available, and the building is safe enough, it should be entered for a quick walk-through. This allows the discovery of any potentially serious damage or falling hazards within the building.

- **Detailed Evaluation** - where buildings are inspected more thoroughly, with more investigation into the framing systems. Detailed evaluations can take anywhere from one to four hours. Usually this level of evaluation is used for buildings in which the condition is not obvious.
- **Engineering Evaluation** - where buildings are inspected using all available data to ascertain the damage, its cause, and how to repair it. This is a detailed engineering investigation performed by architects and engineers retained by the building owner. Engineering evaluations can take anywhere from one full day to seven days or more depending on the size of the building.

The original idea behind the safety assessment process was to perform rapid evaluation to identify the obviously safe and unsafe structures, and then perform detailed evaluation of those structures where the condition was not obvious. After the detailed evaluations, it was then up to the owner to retain an engineer to perform the engineering evaluation and develop a repair program.

Two important points must be made about the process as originally proposed. First, after the engineering evaluations, engineers will not post buildings. However, if the engineering evaluation shows that a different posting is more accurate, a letter from the engineer to the building official could result in a change of posting. Another option would be to perform enough immediate mitigation of the hazards to warrant changing the posting from **UNSAFE** to **LIMITED ENTRY** or **RESTRICTED USE**.

The second point is that experience has shown that most likely only one level of evaluation will be performed. For smaller events (small number of damaged structures) a jurisdiction may decide to perform nothing but detailed evaluations. For larger events, such as the Northridge earthquake, the jurisdiction will most likely elect to perform rapid evaluations only. As there becomes more understanding of the **LIMITED ENTRY** placard or more widespread use of the **RESTRICTED USE** placard, the less need there will be to perform two levels of evaluation before turning the structures over to the owner's engineer. For a questionable structure, the importance is to place the correct limitations or restrictions on the occupancy. When that is done, the owner can then retain an engineer to begin the repair process.

4.3.1 Rapid Evaluations

Early in the response phase of a disaster, local government is more interested in getting buildings evaluated as rapidly as possible. It will be in these early days when property owners and elected officials will be concentrating on other areas of the disaster so the building official will not be "swamped" with calls to evaluate specific properties. It will be at this time that the building official will implement the priorities, which will always begin with essential service facilities, as established in the operational plan. In all likelihood, the evaluations performed at this time will be rapid evaluations where teams will spend 10 to 20 minutes per building, posting as many as possible. Later in the response, there will be many phone calls requesting inspections and involvement of the elected officials in "taking care of their districts." At this time the methodical approach to safety assessment tends to break down. It will also be during this phase that the likelihood of performing detailed evaluations will increase.

4.3.1.1 Rapid Evaluation Forms

Just like the placards the forms have gone through an evolutionary process. The following is a copy of the original ATC-20 Rapid Evaluation Form:

Block _____ Parcel No. _____

ATC-20 Rapid Evaluation Safety Assessment Form

BUILDING DESCRIPTION:

Name: _____

Address: _____

No. of stories _____

Primary Occupancy: Dwelling ☐

Other Residential ☐ Commercial ☐ Office ☐

Industrial ☐ Public Assembly ☐ School ☐

Government ☐ Emer. Serv. ☐ Historic ☐

Other _____

OVERALL RATING: (Check One)

INSPECTED (Green) ☐

_____ Exterior Only

_____ Exterior and Interior

LIMITED ENTRY (Yellow) ☐

UNSAFE (Red) ☐

INSPECTOR:

Inspector ID _____

Affiliation _____

INSPECTION DATE

Mo / day / year _____

Time _____ am pm

Instructions: Review structure for the conditions listed below. A "yes" answer to 1, 2, 3, or 5 is grounds for posting entire structure UNSAFE. If more review is needed, post LIMITED ENTRY. A "yes" answer to 4 requires posting AREA UNSAFE and/or barricading around the hazard. Hazards such as toxic spill or an asbestos release are covered by 6 and are to be posted and/or barricaded to indicate AREA UNSAFE.

Condition	Yes	No	More Review Needed
1. Collapse, partial collapse, or building off foundation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Building or story noticeable leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Severe racking of walls, obvious severe damage and distress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Chimney, parapet or other falling hazard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Severe ground or slope movement present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Other hazards present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Recommendations:

☐ No further action required

☐ Detailed Evaluation required (circle one) Structural Geotechnical Other _____

☐ Barricades needed in the following areas: _____

☐ Other: _____

Posted at this Assessment: ☐ Yes ☐ No

Comments: _____

Like the placards the forms have gone through an evolutionary process. Since the 1989 Loma Prieta earthquake and the first use of the ATC-20 forms there has been discussion regarding the contents of the form. The most significant discussion centered on the concept of developing dollar estimates of the damage. This was a concept that was part of the original OES form but was dropped by ATC at the request of the engineers who had performed safety evaluations in the past. Local government, on the other hand, wants dollar estimates of the damage. The result of the discussions was to take a compromise position with the revised forms and estimate the percentage of damage (as was done with the original OES forms).

This unending controversy needs to be discussed and reasons for providing and not providing dollar estimates clearly understood. Speaking from a federal assistance standpoint, you remember from Unit 2 that FEMA must evaluate the cost of damage against the ability of the jurisdiction to recover. This evaluation is what FEMA uses to make their recommendation to the President. In order to get the cost of damage FEMA, in conjunction with OES and the local government, performs preliminary damage assessments (PDAs) for public assistance and individual assistance. During these PDAs the inspectors will develop estimates of the cost to repair the damaged facilities. In the case of public assistance, if local government has a rough dollar estimate of the damage before the PDA begins, they are in a better position to have significant influence with the FEMA inspectors on the costs. From an individual assistance standpoint having estimates of the damage gives local government the ability to have input into whether or not the individual assistance program is activated with a Presidential Declaration.

Developing costs of the damage also provides the jurisdiction with a mechanism of describing the damages to their elected officials. Telling a mayor that there were 25,000 buildings that received some level of damage says very little. Consequently, the way to describe damage to elected officials in a meaningful way is with costs. It is more readily understood to say, "We have suffered approximately \$45 million in damage." Additionally, the news media is looking for the same information. Telling their readers or listeners that 25,000 buildings were damaged does not tell them much. However, to report \$45 million in damage puts the magnitude into a perspective that is easily understood. These are the main reasons why local government asks for dollar estimates on the damage.

The engineers believed, rightfully so, that they were not spending enough time on each building to provide a dollar estimate supported with any degree of accuracy. Further, the way the program is activated, engineers were responding into areas where they did not know the prevailing construction costs. This also played into the concerns of accuracy. These engineers were also concerned that the estimates would tend to take on a life of their own and be considered as hard estimates, thereby causing confusion with building owners who may find that actual costs were significantly higher or possibly lower.

To put the discussions into context, the dollar estimates are of value in putting the damages into context that everyone can understand. Order of magnitude estimates are the best that can be expected in the process and all that local government is looking for. The responding safety evaluators need to understand that the initial estimates are used primarily to assist in obtaining financial assistance from the State and Federal governments not to define repair schemes. Once a PDA has been performed, the initial dollar estimates developed by local government are replaced with the PDA estimates. However, the concept of not knowing prevailing construction costs is still very valid.

ATC-20 Rapid Evaluation Safety Assessment Form

Inspection

Inspector ID: _____ Inspection date and time _____ ☐ AM ☐ PM
Affiliation: _____ Areas inspected: ☐ Ext. only ☐ Exterior and interior

Building Description

Building Name: _____
Address: _____
Building contact/phone: _____
Number of stories above ground: ____ below ground: ____
Approx. "Footprint area" (square feet) _____
Number of residential units: _____
Number of residential units not habitable: _____

Type of Construction

☐ Wood frame ☐ Concrete shear wall
☐ Steel frame ☐ Unreinforced masonry
☐ Tilt-up concrete ☐ Reinforced masonry

Primary Occupancy

☐ Dwelling ☐ Commercial ☐ Govt.
☐ Other residential ☐ Offices ☐ Historic
☐ Public assembly ☐ Industrial ☐ School
☐ Emergency Services ☐ Other: _____

Evaluation

Investigate the building for the conditions below and check the appropriate column.

Estimated Building Damage

(excluding contents)

Observed Conditions:

Minor/None

Moderate

Severe

☐ None

Collapse, partial collapse, or building off foundation ☐ ☐ ☐ ☐ 0 - 1%

Building or story leaning ☐ ☐ ☐ ☐ 1 - 10%

Racking damage to walls, other structural damage ☐ ☐ ☐ ☐ 10 - 30%

Chimney, parapet, or other falling hazard ☐ ☐ ☐ ☐ 30 - 60%

Ground slope movement or cracking ☐ ☐ ☐ ☐ 60 - 100%

Other (specify) _____ ☐ ☐ ☐ ☐ 100%

Comments: _____

Posting

Choose a posting based on the evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an UNSAFE posting. Localized *Severe* and overall *Moderate* conditions may allow a RESTRICTED USE posting. Post INSPECTED placard at main entrance. Post RESTRICTED USE and UNSAFE placards at all entrances.

☐ INSPECTED (Green placard) ☐ RESTRICTED USE (Yellow placard) ☐ UNSAFE (Red placard)

Record any use and entry restrictions exactly as written on placard _____

Further Actions

Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

☐ Detailed evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other: _____

☐ Other recommendations: _____

Comments: _____

A compromise was reached in the development of the new rapid evaluation forms that has the evaluators determining a percentage of damage within given ranges. The evaluator can then use whatever procedure they wish to determine the percentage. In conjunction with this, the evaluator will also provide the "footprint" area of the building and the number of stories. One approach local government can use to determine the dollar estimate would be to use the information on the evaluation forms with standard construction cost tables. For example, if the type of construction had a value of \$100.00 per square foot; the building had a footprint area of 2,000 square feet; the building height was 3 stories; and there was 10 percent to 30 percent damage, the dollar estimate of the damage would have a range:

$$\$100.00 \times 2,000 \times 3 \times 0.1 = \$60,000.00$$

$$\$100.00 \times 2,000 \times 3 \times 0.3 = \$180,000.00$$

The jurisdiction would most likely use the mid-point of the range and say there was \$120,000.00 worth of damage.

A copy of the revised rapid evaluation form appears on the preceding page.

3.3.1.2 Filling Out the Rapid Evaluation Forms

As with the placards, you will need to be familiar with the original evaluation forms as well as the revised forms. Also you need to be prepared for jurisdictions to develop their own forms. When jurisdictions develop their own forms, they usually use the ATC forms as a starting point, and then add boxes and lines for the kinds of additional information that they are looking for.

To understand and be familiar with the forms will greatly assist you when you are activated and respond to a jurisdiction's request for safety assessment assistance. The original ATC-20 rapid evaluation form is the form that you will see most often.

Original ATC-20 Rapid Evaluation Form

At the top of the page, the Block and Parcel lines will be filled in by the jurisdiction if they wish to track this information. The building description box contains vital information for the jurisdiction for tracking, as well as maintaining, current information on the status of all buildings. The following is the information that should be provided:

1. **Name:** This is the name of the building, facility, or business. If you cannot find the name of the building then provide the name of the business or the onsite manager. In the case of single-family residences provide the name of the owner or tenant, or simply leave the line blank.
2. **Address:** To the extent possible, this information should always be provided. If the number is not found on the building, look at adjacent buildings to see if you can find a number and try to determine the street number of the building being evaluated. In residential areas, if the address is not found on the building, look at adjacent homes or on the curb in front of the home.
3. **Number of Stories:** This is the number of stories above grade, not counting the basement. For commercial buildings located on a hillside this should be figured from the lowest ground level. For residential buildings located on a hillside this should be figured from the main entry.
4. **Basement:** This is where you account for any basement. For the purpose of this evaluation there is no need to note how many levels there may be below grade. It is sufficient just to indicate that there are one or more levels below grade. Should there be specific damage to one of the levels below grade, the Comments Section at the bottom of the form can be used to

indicate at which level the damage was found.

5. **Primary Occupancy:** This information is used primarily for record keeping and statistics. The actual use of the building does not necessarily have a bearing on the continued occupancy. This also is a help to the jurisdiction when it comes time to do a preliminary damage assessment to ascertain whether or not the President declares a major disaster.
6. **Overall Rating:** This will be the last block that is filled out. When the evaluation has been completed, and the posting determined, then the condition will be noted in this box. This allows the jurisdiction to see the posting at a glance without going through the whole form.
7. **Inspector ID:** Originally the evaluation team would enter the ID numbers on this line. This was done when jurisdictions did not deputize the responding individuals. Using one's ID number provided an additional level of liability protection because the building owner and/or the jurisdiction had to come to OES to put a name to the number. Now that more jurisdictions are deputizing the responding individuals, they can require you to use your name instead of the ID number. This is allowable and does not diminish any of the liability protection provided by the **California Emergency Services Act** or any other legislation.
8. **Inspection Date:** This is one of the most important boxes to fill out. In the event of a large aftershock, the jurisdiction can rapidly review the evaluations that have been performed and determine which buildings should be re-inspected.

In the Condition block of the form are six questions that need to be answered. Your answer to these questions will determine the posting of the building. Looking first at the instructions we see that a yes answer to either question 1, 2, 3, or 5 is grounds for an UNSAFE posting. However, using these instructions verbatim takes away some of the judgment of the evaluation team. We saw previously in this section where a home off its foundation does not necessarily mean that it is unsafe. Use the instructions as a guideline, not a hard rule.

As you work your way through the six questions, make sure that you check the appropriate box. Anytime you check, "More Review Needed," it implies that you will be recommending that a detailed evaluation be performed. This evaluation is to determine whether or not the building can be occupied. If you can make a determination based on what you see during the rapid evaluation, there is no need to indicate that more review is needed. If the building has been damaged it will get additional review when the owner retains an engineer or architect to develop a repair program.

This final block of information is provided to the jurisdiction so they know what they need to do about the building. Most buildings evaluated will result in "No further action required." However, you may run into buildings where you simply do not have the time to completely evaluate the damage or you need to get inside to complete the evaluation and cannot. These are the kinds of buildings where you will recommend that a detailed evaluation be performed. Even when you are recommending a detailed evaluation, you still need to post the building. In these cases be conservative in your evaluation.

Other conditions may be present that are beyond your expertise to evaluate. Here again, do not hesitate to request a more detailed evaluation. The form has been developed so you can recommend any type of evaluation. In these cases, probably the most common evaluations will be geotechnical and hazardous materials.

In some cases, you may feel the building presents a threat to public safety and that barricades are necessary to keep people back from the damaged building. When checking the barricades box, make sure you indicate where the barricades should be installed. If there is not enough room to provide the required guidance, continue the description in the comments box.

"Posted this assessment" is intended to let the jurisdiction know if a placard was posted on the building. Anytime you mark the "No" box, make sure you provide an explanation in the Comments Section. This way the jurisdiction knows the building was not posted and why. If necessary, they can send another team out to place the appropriate placard on the building.

Finally, the Comments box is intended for you to relay any specific information you feel is necessary to the jurisdiction. The most common information included here will be restrictions you may place on continued occupancy. The restrictions placed should be noted on the placard and in the Comments Sections of the form. In both places make sure you use the exact same wording.

Revised Rapid Evaluation Form

Since you will not know which forms the jurisdiction will be providing you, it is imperative you be familiar with both. The revised form is presented in the same manner as the original form with a full discussion of how to fill it out.

1. **Inspector ID:** As with the original form, this block is filled with either your ID number or your name. Again, if the jurisdiction has deputized you, they have the right to require you to use your name not an ID number. As with the original form, use of your name does not minimize your liability protection.
2. **Affiliation:** This information allows the jurisdiction to keep track of the evaluations that are done by their own staff and from mutual aid resources obtained through OES. As a resource, you would write in your home jurisdiction if you were a part of the CALBO program or OES if you are from the private sector.
3. **Inspection Date and Time:** This is one of the most important boxes to fill out. In the event of a large aftershock, the jurisdiction can rapidly review the evaluations that have been performed and determine which buildings should be re-inspected.
4. **Areas inspected:** This allows the jurisdiction to know at a glance how thorough the evaluation was. Obviously, if the evaluation were performed both inside and outside the building, it will be more thorough than from just the outside. However, many times the condition of the building can be determined from the exterior only, and there is no need to enter the building. As an example the jurisdiction could use this information to prioritize buildings for re-evaluation after a large aftershock. Those that had been evaluated from the exterior only might receive a higher priority for re-evaluation. Again, if there is no need to go inside the building, don't go in.
5. **Name:** This is the name of the building, facility, business, or onsite manager. If you cannot find the name of the building then provide the name of the business or the onsite manager. In the case of single-family residences note the name of the owner or tenant, or simply leave the line blank.
6. **Address:** To the extent possible, this information should always be provided. If the number is not found on the building, look at adjacent buildings to see if you can find a number and try to determine the street number of the building being evaluated. In residential areas, if the address is not found on the building, look at adjacent homes or on the curb in front of the home.
7. **Building contact/phone:** If the owner and/or tenant are available when you are performing your evaluation, getting their phone number is advantageous to the jurisdiction. This gives the jurisdiction the ability to easily follow up on the repairs to the building. If the individual who is there when you do your evaluation is reluctant to give you this information, or if no one is there, simply indicate "NOT AVAILABLE" in the space provided.

8. **Number of Stories:** This is simply to record the height of the building. This is information the jurisdiction will use if they wish to place a cost estimate on the damage. In the new form, you now provide the number of levels above grade and the number below grade. For hillside sites, use the same criteria as noted for the original rapid evaluation form.
9. **Approximate "footprint area:"** This is another piece of information that the jurisdiction will use to place costs to the damage. Footprint area is specified so the jurisdiction knows exactly what area is being presented. Without this specific, some evaluators would give footprint area and some would give gross area.
10. **Number of residential units and Number of units not habitable:** This allows the jurisdiction to track displaced persons as well as to determine needs for short-term sheltering of these displaced persons. When the operation changes from response to recovery, this information helps in determining the needs for long-term sheltering or temporary housing.
11. **Type of Construction:** This information is provided to the jurisdiction for two reasons: 1) for use in determining the cost of the damage; and 2) for statistical information. At the rapid evaluation level, this information is very general and usually can be determined from the exterior of the building.
12. **Primary Occupancy:** This information is used primarily for cost estimating and statistics. The actual use of the building does not necessarily have a bearing on the continued occupancy. This also is a help to the jurisdiction when it comes time to do a preliminary damage assessment to ascertain whether or not the President declares a major disaster.

In the evaluation section, we find basically the same six questions that appeared in the original Rapid Evaluation form. In this case, the instructions and the categories of damage allow the evaluation team to use their own judgment in determining the appropriate condition.

13. **Observed Conditions:** In this case there is more allowance for judgment in answering the questions. Instead of simply yes or no, we now look at degrees. Answering the questions in this manner becomes a tool for determining the estimated building damage.
14. **Estimated Building Damage:** This is purely a judgmental factor. There is no set methodology to calculate this information. As you can see, the ranges of percentages are rather broad once you reach the 10 percent mark. Probably the easiest method of determining the percentage is to roughly estimate the repair cost excluding contents (to the nearest \$10,000 on light damage and to the nearest \$100,000 on more heavily damaged structures) and divide it by the replacement cost. Some individuals will feel comfortable in simply "sight" estimating this percentage. This information, plus the footprint area of the building, number of levels, type of construction, and occupancy, allows the jurisdiction to develop a dollar estimate of the damage.

The Posting section places the culmination of the evaluation in one place. Simply check the box that represents the placard you post. If the building is posted as RESTRICTED USE, use the lines provided to record the restrictions on continued occupancy. In the instructions portion is the reminder of where to post the building.

Though laid out slightly differently, the Recommendations section is the same as the Recommendations section on the old Rapid Evaluation form.

4.4 Detailed Evaluation

The next level of evaluation is the Detailed Evaluation. This type of evaluation is a thorough visual examination of the damaged building, usually from the exterior and interior. It is commonly performed on those buildings for which there are some questions regarding the structural condition. In most cases, the building will have been posted with a **LIMITED ENTRY/RESTRICTED USE** or **UNSAFE** placard.

Detailed Evaluations may be used for other than structurally related problems with the building. A very common form of Detailed Evaluation would be for geotechnical problems where the expertise of a geotechnical engineer may be needed. In this case, the evaluation would be performed using the Geotechnical Evaluation Form (copy included in appendix A). Another form of detailed evaluation that can be performed is one relating to the potential for hazardous materials. This is an evaluation that can be performed by the local fire department or the building department, or may require the owner to retain a professional consultant and include their report as a part of the engineering evaluation.

4.4.1 Evaluation Form

The discussions, revisions, and reasons for modifications to the Detailed Evaluation are the same as for the Rapid Evaluation forms. The main purpose was to provide local governments with more information to allow them to develop dollar estimates of the damage and to provide more historical data on the damaged buildings. The use of these forms will be determined by the jurisdiction in charge of the operation. The original and revised Detailed Evaluation forms appear on the following pages.

Block _____ Parcel No. _____

ATC-20 Detailed Evaluation Safety Assessment Form

BUILDING DESCRIPTION

Name: _____

Address: _____

No. of Stories: _____

Basement: Yes ☐ No ☐ Unknown ☐

Approximate Age: _____ Years

Approximate Area: _____ Square feet

Structural System:

Wood frame ☐ Unreinforced Masonry ☐

Reinforced Masonry ☐ Tilt-up ☐

Concrete Frame ☐ Concrete Shear Wall ☐

Steel Frame ☐ Other: _____

Primary Occupancy:

Dwelling ☐ Other Residential ☐ Commercial ☐

Office ☐ Industrial ☐ Public Assembly ☐

School ☐ Government ☐ Emer. Serv. ☐

Historic ☐ Other: _____

OVERALL RATING: (Check One)

INSPECTED (Green) ☐

LIMITED ENTRY (Yellow) ☐

UNSAFE (Red) ☐

INSPECTOR:

Inspector ID _____

Affiliation _____

INSPECTION DATE:

Mo / day / year _____

Time _____ am pm

Instructions: Complete building evaluation and checklist on next page and then summarize results below.

Posting:

None ☐

Inspected (Green) ☐

Limited Entry (Yellow) ☐

Unsafe (Red) ☐

Existing

☐

☐

☐

☐

Recommended

☐

☐

☐

Posted at this Assessment:

☐ Yes ☐ No

Existing posting by:

Recommendations:

☐ No further action required

☐ Engineering Evaluation required (circle one) Structural Geotechnical Other: _____

☐ Barricades needed in the following areas: _____

☐ Other (falling hazard removal, shoring/bracing required, etc.): _____

Comments (Why posted Unsafe, etc.): _____

Sheet _____ of _____

ATC-20 Detailed Evaluation Safety Assessment Form (Continued)

Instructions: Examine the building to determine if any hazardous conditions exist. A "yes" answer in categories 1,2, or 4 is grounds for posting building UNSAFE. If condition is suspected to be unsafe and more review is needed, check appropriate Unknown box(es) and post LIMITED ENTRY. A "yes" answer in category 3 requires posting and/or barricading to indicate AREA UNSAFE. Explain "yes," "Unknown" findings and extent of damage under "Comments."

Condition:	Hazardous Condition Exists			Comments
	Yes	No	Unknown	
1. Structure Hazardous Overall				
Collapse/partial collapse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Building or story leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Hazardous Structural Elements				
Foundations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Roof/floors (vertical loads)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Columns/pilasters/corbels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Diaphragms/horizontal bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Walls/vertical bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Moment frames	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Precast connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Nonstructural Hazards				
Parapets/ornamentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cladding/glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ceilings/light fixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Interior walls/partitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Elevators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stairs/exits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Electric/gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4. Geotechnical Hazards				
Slope failure/debris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ground movement, fissures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

SKETCH:
.
.
.
.
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ATC-20 Detailed Evaluation Safety Assessment Form

Inspection

Inspector ID: _____

Affiliation: _____

Inspection date and time: _____ ☐ AM ☐ PM

Final Posting from page 2

- ☐ Inspected
☐ Restricted Use
☐ Unsafe

Building Description

Building Name: _____

Address: _____

Building contact / phone: _____

Number of stores above ground ____ below ground ____

Approx. "Footprint area" (square feet) _____

Number of residential units: _____

Number of residential units not habitable: _____

Type of Construction

- ☐ Wood frame ☐ Concrete shear wall
☐ Steel frame ☐ Unreinforced masonry
☐ Tilt-up concrete ☐ Reinforced masonry
☐ Concrete frame ☐ Other: _____

Primary Occupancy

- ☐ Dwelling ☐ Commercial ☐ Govt.
☐ Other residential ☐ Offices ☐ Historic
☐ Public Assembly ☐ Industrial ☐ School
☐ Emergency Services ☐ Other: _____

Evaluation

Investigate the building for the conditions below and check the appropriate column. There is room on the second page for a sketch.

	Minor/None	Moderate	Severe	Comments
Overall hazards:				
Collapse or partial collapse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Building or story leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Structural hazards:				
Foundations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Roofs, floors, (vertical loads)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Columns, pilasters, corbels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Diaphragms, horizontal bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Walls, vertical bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Precast connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Nonstructural hazards:				
Parapets, ornamentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Cladding, glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ceilings, light fixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Interior walls, partitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Elevators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Stairs, exits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Electric, gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Geotechnical hazards:				
Slope failure, debris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ground movement, fissures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
General Comments: _____				

Page 2

Further Actions Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

☐ Engineering Evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other: _____

☐ Other recommendations: _____

Comments: _____

4.5 Engineering Evaluation

The Engineering Evaluation is the final and most comprehensive of the three levels of evaluation. This level of evaluation is not a part of the safety assessment process and is performed by a professional engineer or architect retained by the building owner. This evaluation can take anywhere from one to several days and will determine the cause of the damage and an appropriate repair program. This repair program is then submitted to the building department to make sure it complies with the jurisdiction's repair criteria. Once the jurisdiction agrees with the proposal, a building permit is issued and the repair work proceeds.

Notes:

UNIT 5

OTHER HAZARDS

Unit 5 Training Guidance

Overview

The Safety Assessment Program can be activated for hazards other than earthquake. The potential exists for activation following high wind events (hurricane and tornado), flood events, and fires. In this unit, we will look at these other hazards and how the buildings would be posted.

Training Goal

Participants will know how to conduct evaluations for other types of hazards. Primarily, this unit will look at using safety assessment personnel to evaluate damaged buildings following high wind events (hurricanes or tornados), floods, and fires.

Objectives

Upon completion of this unit, participants will be able to:

- Respond effectively to other types of disasters or emergencies as well as earthquakes.

5.0 Other Hazards

The Safety Assessment Program was originally developed to provide additional support to local government following earthquakes, as this is the hazard that usually needs the most assistance. To this end, the Applied Technology Council developed the process and procedures for evaluating buildings based on an earthquake disaster. Since being published and presented in 1989, the ATC-20 procedures have been used on numerous earthquake disasters around the world.

Earthquakes are not the only events that have the potential for damaging buildings, nor are they the only hazard that will use large numbers of evaluators to determine the safety of structures. Therefore, the procedures of ATC-20 are being expanded to cover other hazards such as high winds (including hurricane and tornado), flood, and fire.

The evaluation process for these other hazards is, in many respects, easier than working in the earthquake environment. With earthquakes, we need to deal with aftershocks and how they affect already damaged buildings. We look at the ability of the damaged structure to be able to withstand another event of similar size within a short period of time. With these other hazards, once the event is over, there is a much smaller likelihood that the damaged structure will have to survive another event before it can be repaired or stabilized.

5.1 High Wind (Hurricane and Tornado)

When responding to a hurricane, the evaluator must consider the two hazards of high wind and rain. Over the past few years, there have been many examples of hurricane disasters that include flooding. Hurricane winds significantly impact the lateral force resisting system within a building, the roof structure from uplift, and the doors and windows. If the windows and doors on the windward face of the building are blown out or broken from flying debris, the lateral force resisting system will have a sudden change in the forces imposed. Instead of constant force on the windward side of the building and suction on the leeward side, there will suddenly be increased pressure on the interior of the building, with a combination of direct force, suction, and uplift. Many older buildings can resist the direct forces while the windows are intact, but fail when the windows are blown out. However, the major damage resulting from a hurricane is usually a result of the accompanying flood.

Tornados, on the other hand, severely damage buildings as a result of the explosive internal pressures generated by the storm's pressure drop. Structures close to the storm will have a much higher internal pressure than the area around the storm, causing windows to blow out. Additional severe hazards that occur with tornados are projectiles. Large pieces of wood can be blown through heavy walls like a missile. Heavy rains accompany tornados, but usually do not result in heavy flooding. They can cause some local flooding conditions. Where damages associated with hurricanes come from the flooding, damage from tornados come from the very high winds.

When evaluating structures that have been damaged as a result of high winds, we follow similar procedures as with earthquakes (from Unit 2).

1. Survey of the building exterior.

- Determine structural system.
- Examine exterior for damage.
- New damage to foundations.

2. Examine the site for geotechnical hazards.

- This step need only be employed if the storm was accompanied by heavy rains and flooding. In this case, you are looking for signs of settlement as a result of saturated soils or undermining of the footings.

3. Inspect structural system from inside building – enter the building only if you need to and you have determined that is safe to do so.

- Do not enter obviously unsafe buildings.
- Do not perform destructive investigation.
- Look in areas where the structural system is exposed.
- Identify and examine vertical load system.
- Identify and examine lateral load system.
- Inspect basements. Usually this only needs to be done if there has been some flooding. In this case you are looking to see if the basement is flooded. If it has been flooded and the water has receded, proceed with your evaluation to determine the condition of framing.
- Examine every floor, including the roof and penthouse(s).

4. Inspect for nonstructural hazards.

- Look for damage to nonstructural systems. If there has been significant flooding, the ceilings on the lower levels could be saturated and pose a falling hazard.
- Look for damage to equipment and equipment supports.

5. Inspect for other hazards.

- Spills or leaks in stored chemicals or other hazardous materials.

6. Complete forms and post buildings.



(Photograph courtesy of FEMA)

Figure 5-1 – Virgin Islands, Hurricane Lenny, 1999

know if there is a falling hazard with all or portions of the ceiling. If that were in fact the condition, then possibly portions of the home could be posted UNSAFE until the falling hazard is removed. The overall posting of the home would be RESTRICTED USE with portions UNSAFE.

We see that there is substantial damage to the roof. This is one of the more common forms of damage from high winds, especially in single or two-story residential structures. With the roof damaged in this manner, there is a significant amount of damage to the interior from the accompanying rains. From a safety assessment standpoint, there is significant damage to both the vertical and lateral force-resisting systems. However, since the storm is over, the likelihood of another storm occurring before the building can be stabilized or repaired is usually pretty low. This building could be posted as RESTRICTED USE to allow free access for possession retrieval and repair. Without seeing the interior we don't



(Photograph courtesy of FEMA)

Figure 5-2 – Virginia, Hurricane Floyd, 1999

In this case, we see the force of the wind has blown in the windward side of the building. Once this building was opened like this, the wind blew through the building and the leeward wall was under a suction force as well as a direct force. This could have lead to a failure of the leeward wall and a collapse or partial collapse of the structure. We can assume from the picture that there was no partial collapse. However, the wall framing on the leeward wall could be permanently deformed and bowed. Since light, steel-framed buildings use moment frames and not bearing walls, deformed wall framing is not a significant hazard to occupants. This building could be posted as RESTRICTED USE for possession and stock retrieval and free access for contractors to make the necessary repairs.



(Photograph courtesy of FEMA)

Figure 5-3 – Kansas Tornado, 2001

Damage from tornados can be more severe than that from hurricanes but it is usually limited to a small area. As tornados move through a community, the extreme damage is on either side of the storm and can absolutely devastate one block of homes and leave the next block with no damage at all. The safety assessment process is rather simplified as most structures will be destroyed and the entire area can be posted as AREA UNSAFE as seen in this photograph. By posting the area as UNSAFE, the jurisdiction has a means of controlling access into the area. For example, with identification showing residence or business address the property owner or tenant could have free access to look for and retrieve whatever possessions they can find.



(Photograph courtesy of FEMA)

Figure 5-4 – Kansas Tornado, 2001

This is an example of the devastation around an area with a single structure left intact. In this case the structure was probably saved when the windows blew out because of the extreme pressure difference. This allowed the higher pressure inside the building to equalize with the surrounding area. This home most likely has a lot of content damage and broken glass (most of the glass will be outside the structure as the windows would tend to blow outward). It is possible that there could be some damage to interior walls and ceilings, leaving some falling hazards. If we assume there are no falling hazards, the home could actually be posted INSPECTED. But more realistically, it would be posted RESTRICTED USE,

allowing the owner free access for possession retrieval, but noting the potential for gas leaks and downed electrical lines. In this case, there would be an explosion and/or fire hazard that should be noted so the first ones in would turn off the gas.



(Photograph courtesy of FEMA)

Figure 5-5 – Cordell, Oklahoma Tornado, 2001



(Photograph courtesy of FEMA)

Figure 5-6 – Kansas Tornado, 2001

This is a condition that is quite common with tornadoes and most likely would be posted as UNSAFE as there has been a partial collapse. However, one could make a reasonable argument that the structure is safe enough to allow the owners inside to retrieve possessions. In this case the structure would be posted as RESTRICTED USE for possession retrieval only.

Smaller tornadoes with lower Fujita ratings usually do not cause full collapse of structures, but they can cause significant roof damage as can be seen in this school auditorium. It is very likely that the damage shown here would not have been found without entering the building. In this case, there are significant falling hazards and the particular room would be posted UNSAFE pending the removal of the damaged and hanging framing and ceiling. If this were the only room damaged, the room is posted UNSAFE while the building is posted RESTRICTED USE with no general access to the auditorium.

It should be pointed out that roof failures such as this are also a common condition with windstorms that are not hurricanes or tornadoes.

5.2 Floods

Floods fall into two general categories, these being the slow moving inundation type, and the fast moving flash flood type. The slow moving inundation type of flood is the most common within the United States. From a safety assessment perspective, there is plenty of time to mobilize evaluators, as assessments cannot be performed until such a time as the water level recedes. In some cases this can take weeks before buildings become accessible. In this type of flood, the damage that occurs is from the submersion in water and is primarily contents related. When the floor is underwater, the likelihood is that the sub-floor or diaphragm will need to be replaced along with all or a portion of the floor framing.

In the case of fast moving water, the damage is more catastrophic as there is a significant amount of

force behind the wall of water. Fast moving floods can also cause scour around the foundations leading to damage to the foundation and walls. Typical types of damage from this type of flooding are collapse, partial collapse, or moving the structure off its foundation. A fast moving wall of water can result in inundation for a period of time, or it can run off quickly allowing for a rapid mobilization of evaluators.

Flood events also present additional hazards to the evaluator that are not necessarily common with other hazards. Entering an inundated structure where the water is above the line of the wall outlets and the electrical power has not been turned off is a quick way to electrocution. This is the primary reason that people are not allowed in flooded structures until such a time as the power has been turned off. In cases where the power is off over a large area because of the storm, care must be taken to ensure that power is turned off at the building also to protect against electrocution. Another serious hazard to consider is "black mold." This is especially a problem where the structure has been inundated for a number of days before the water recedes. Black mold is a fungus that can cause severe respiratory problems.

The evaluation procedures for floods are the same as for earthquakes and wind, except that the evaluator does not have to consider geotechnical problems beyond scour, settlement, or saturated ground. Also, evaluation of floors above the flood line can be rapid as the likelihood of damage at these levels is remote.



(Photograph courtesy of FEMA)

Figure 5-7 – Louisiana, Tropical Storm Alison, 2001

Much can be told by looking at the exterior of a structure before you enter. In this case, the water line can be seen at the top of the windows. This will tell you that the home was inundated and there will be significant content damage. From the structural standpoint, the floor framing and diaphragm will most likely have to be replaced due to warping as the materials dry out. Does this constitute reason to post the building UNSAFE? No, that is a condition of repair. In most cases, homes subjected to a slow moving flood will be posted as INSPECTED or possibly RESTRICTED USE. If ceiling materials have been soaked, they do represent a potential falling hazard. This would be sufficient to cause a RESTRICTED USE posting with a caution that ceilings have been soaked and could fall.

In many cases, safety evaluations will not be performed following these types of floods. When they are performed, there will not be many UNSAFE buildings. Even those that have floated off their foundations can still be entered to retrieve possessions. It is not like the case of earthquakes where the operation of the exits needs to be verified in case of an aftershock.



(Photograph courtesy of FEMA)

Figure 5-8 – Louisiana, Tropical Storm Alison, 2001

In this case, the structure has been raised and portions of the foundation wall have been left open to allow for airflow during non-flood conditions, and to allow the water to flow through when flooded. Looking at the picture, we see that the water level did not reach the first floor level. Therefore, evaluation of this property would be primarily around the foundations to ensure that all are sound; there has been no settlement; and no scouring around the corners of the foundation walls. This building could be posted as **INSPECTED**. You would also look for the high water mark to determine if the framing could have been soaked. Again, wet framing is not

grounds for a **RESTRICTED USE** or **UNSAFE** posting. However, a comment about potential warping of the framing in the Comments box on the placard and evaluation form would be appropriate.



(Photograph courtesy of FEMA)

Figure 5-9 – West Virginia Flood, 2001

This picture is a good example of the lack of structural damage as a result of slow moving floods. The arrow shows the water line at the time of maximum flood depth. Certainly the finishes will need to be repaired by either cleaning or replacing as necessary, and there is a significant amount of mud and debris on the floor. In this case, the floor is a concrete slab on grade; so warping does not present a problem as it dries out. This building would be posted **INSPECTED**.



(Photograph courtesy of FEMA)

Figure 5-10 – West Virginia Flood, 2001

Fast moving floods, such as flash floods or flooding in swift streams, can and often do cause structural damage to structures. These types of floods are extremely hazardous to structures that are not anchored to their foundations or have unbraced cripple walls. With earthquakes, these types of buildings often slide on their foundations, or the cripple walls collapse. The same thing can happen with fast moving floods. The force of the water striking an unanchored structure will not only move it off its foundation, but will float it, causing the structure to be swept away with the stream.



(Photograph courtesy of FEMA)

Figure 5-11 – West Virginia Flood, 2001

Another hazard that accompanies floods and must be considered in a safety evaluation is mud and debris that can block openings, denying access to buildings. In this picture, we see mud and debris covering approximately half the door height. This type of debris build-up precludes access to the building from a strictly practical standpoint. Once the debris is removed, access is fully available. If evaluations were performed prior to the debris removal, the most likely posting for this structure would be **RESTRICTED USE**, with no access until debris is removed.

In this picture, we see a garage that most likely did not have a foundation and was just sitting on the ground. As the floodwaters struck the building, it floated and was deposited downstream onto this fence. This building should be posted **UNSAFE**, as it is a collapse hazard. The difficulty in filling out the evaluation form and the placard is trying to ascertain the address. This is not uncommon with outbuildings.



(Photograph courtesy of FEMA)
Figure 5-12 – Hurricane Floyd, North Carolina

Even structures that are connected to their foundations will not always withstand the pressure of fast moving water. These structures are moved off their foundation and move with the water until they come to rest, are destroyed by the flow, or the water level drops, depositing them in some unknown location. In this case, the home was deposited on top of a vehicle. However, vehicles will be swept away much faster than buildings, so we don't know if this vehicle belongs with the structure. For safety evaluation there is no doubt that this would be posted as UNSAFE. Again, the problem

comes in tying it to an address. Unless you are familiar with the structure, there is no way you can indicate an address. On the evaluation form, it would be best to simply describe where the building is sitting, using some local landmark or reference point.

5.3 Fires

Fires are another hazard that will usually not require activation of the Safety Assessment Program to evaluate buildings. However, the program was used in Oakland following the 1991 Oakland Hills Fire. In this case, structural engineers from the Bay Area were used to evaluate foundations on destroyed homes. The purpose of the evaluation was to rapidly determine which foundations could be re-used during reconstruction of the homes.

Another instance of safety evaluations being performed following fires was during the Civil Unrest in Los Angeles in 1992. Building inspectors from the City of Los Angeles were evaluating the safety of buildings almost as soon as the fires were put out. In some cases, the building inspectors had to have police escorts to make sure they did not take any sniper gunfire. This is an extreme case, and most likely the program would not be activated.

Local building departments usually will evaluate the safety of a building that has burned. This is done primarily to determine if the burned structure is a hazard to people and property if it is left standing until it can be repaired. These types of inspections are not safety evaluations for the purpose of determining if the structure can be re-occupied. In some cases, private engineers are retained by the owners or insurance companies to determine the appropriate method of repair.

The potential does exist that the Safety Assessment Program could be activated following a major urban-wildfire such as the 1991 Oakland Hills or the Southern California Fire Storms of 1993. Since the fires usually burn the structures to the ground, the evaluations would be to rapidly determine the safety of standing structures such as walls, and possibly to determine if foundations could be re-used. The latter condition would be the case where the responsible jurisdiction was preparing their requirements for reconstruction. They may wish to know how many foundations potentially could be re-used.



(Photograph by Robert A. Eplett, California OES)
Figure 5-13 – Southern California Fire Storms 1993, Malibu

As can be seen in this picture, entire neighborhoods were burned to the ground. With the hot debris lying on the slabs, there is a question regarding the potential for re-using these foundations. Should the Safety Assessment Program be activated for this type of evaluation, the determinations would not be final. If the evaluations showed that foundations potentially could be re-used, the homeowner would need to retain an engineer to fully evaluate the footings for heat damage before the foundation could be re-used.

The extreme heat generated by urban-wildland fires can cause serious damage to the concrete or masonry in the footings. The expansion of the material from the heat can cause serious cracking and spalling. However, if firefighters were on scene when the structure began to burn and were able to keep the surrounding area cool, there is a possibility that the foundation may be able to be re-used.

If the program were activated, the responding evaluators would report to the Fire Department staging area where they would wait for assignment. As with other hazards, the evaluators would be under the direction of the building department with jurisdiction over the area. Overall, this will not be a hazard that will likely result in the activation of the Safety Assessment Program.

Notes:

UNIT 6

SAFETY

Unit 6 Training Guidance

Overview

Safety evaluators need to know how to conduct their evaluations safely. This includes basic field safety when entering damaged buildings, taking care of yourself emotionally while in the disaster area, and being able to identify hazardous materials that are in the area.

Training Goal

Participants will know how to conduct themselves safely while they complete their work. Additionally, participants will be better able to protect themselves from exposure to hazardous materials.

Objectives

Upon completion of this unit, participants will be able to:

- Take appropriate steps to protect themselves and their team members from potential hazards within and around a damaged structure;
- Read the hazardous materials placards; and
- Be able to request additional evaluations for hazardous materials, and what that evaluation may mean to the building owner.

6.0 Safety

The topic of personnel safety is one of the most important topics that will be discussed in conjunction with post-disaster safety assessment. When not on a response and in a secure setting such as a classroom, many of the ideas and requirements of a sound safety program probably appear to be obvious. However, during a response we all tend to get "caught-up" in the action and excitement of the time and forget these basic safety rules. At the end of this unit you will find the "Building Assessment Safety Checklist." We have provided two copies: one to remain in the student manuals; and one that has been reduced to a size that can be added to your ATC-20-1 Field Manual and easily referred to during a response.

6.1 During Inspections

There was not a single serious injury related to the safety assessment process between the inception of the program in 1978 to mid-1992. Although the individual injured was not a safety assessment volunteer, the injury occurred during an assessment of a damaged building. In this particular case, an assessment team entered a YELLOW tagged home on an unstable hillside and proceeded out onto a patio deck overlooking a small ravine behind the home. Before they went on the deck they did not verify the current conditions. While on the deck, it collapsed and one of the individuals suffered a broken back. We cannot emphasize enough the importance of being aware of your surroundings and determining whether it is safe to enter a building or portion of a building before doing so.

There are general safety rules that apply at all times while performing safety assessments. They are:

- **Be aware and cautious.** Be aware of where you are and what is in the area around you. You can easily be impacted by conditions around the site in which you are working. This is also important should you need emergency assistance. Most likely you will be working in an area that you are not familiar with, and when you call for assistance it will be necessary to provide at least the cross streets where you are working.
- **Always work in teams of at least two individuals.** Evaluation teams will always be established with at least two individuals. Never split up in order to cover the area more quickly. Keep together so you always know where the other member(s) of your team is. For Detailed Evaluation teams, where it is required to enter buildings, evaluation teams will be composed of three individuals whenever possible so that one can remain outside the building while the other two enter. If you are on a team composed of two individuals such as a Rapid Evaluation team, do not enter buildings unless you absolutely have to, and then only if it is safe to do so.
- **Always wear a hard hat.** There is a hazard from falling items any time you are working in or around a damaged or potentially damaged building. Hard hats are also a protection from low-hanging exposed electrical wires. Individuals without hard hats will not be assigned to an evaluation team.

As you begin your safety assessment work, realize that many times you will be the first individuals around or in most of the buildings that you evaluate. Consequently, you have no idea of the magnitude of the hazards you will encounter. Assume the worst and be prepared.

- **Do not enter obviously unsafe buildings.** For the most part, obviously unsafe buildings are those that have suffered full or partial collapse. However, there are other conditions that fall into this category. For example, any building that is leaning or significantly out of plumb should automatically be considered unsafe to enter, not only for the occupants but for the evaluation team as well. From the exterior, look for indications of separation between walls and framing

before entering. If you determine that such separations are localized, and decide to enter the building, do not enter the rooms where the separation has occurred.

- **Do not enter buildings, or access appendages of buildings, located on potentially unstable slopes.** If a slope has become unstable as a result of an earthquake, there is no way of determining when, or if, the slope will fail. This condition becomes more hazardous if the slope is continuing to move after the event. As the slope moves, the support conditions for the building or its appendages can change. What was deemed relatively safe 10 minutes earlier might be unsafe now. If entry or access is deemed necessary, make sure that the structure will support the added weight of the evaluation team. If you cannot make such a determination, do not enter the building or any part of the building.
- **Do not enter buildings where falling hazards exist that can block exits.** Falling hazards can take many forms. Loose bricks represent a degree of hazard similar to that of a parapet or ceiling. However, the condition where the hazard falls while you are in the building and blocks your safe exit from the building is a real concern. Individual bricks or ornaments falling represent a hazard to the individual's safety but usually do not block an exit. Be aware of all falling hazard potentials while entering or exiting a building.
- **If the building to be evaluated is leaning excessively or is significantly out-of-plumb, do not enter.** Stay on the side of the building away from the direction it is leaning. This condition definitely represents an obviously unsafe building. However, the concept of "leaning excessively" or "significantly out-of-plumb" cannot be quantified. This is left up to the judgment of the evaluation team. It is important to recognize the potential for collapse of a leaning building. Even if you determine that you can enter the building to complete your evaluation, minimize your exposure to the hazard. Whenever possible, stay on the high side of the building and be aware of the potential hazard.
- **Before entering any building, make sure exit doors are fully operable. Make sure that exit pathways are clear and there are no falling hazards that could obstruct the pathway.** While you are in a building, if it becomes necessary to rapidly evacuate the building and the exit door is stuck, you have exposed yourself to an unnecessary hazard. Before you enter the building, make sure that all the exit doors are fully operable. Also, make sure there is nothing on the interior that can fall and block access to the exit. When you enter a building, make sure that you stay within fairly direct access to those exits that are fully operable.
- **Be aware of hanging or exposed electrical wires.** Always assume that electrical wires are fully charged. Don't touch wires unless you absolutely must. There should be virtually no case in which you would need to move an electrical wire.

After the initial round of evaluations there may be a need for subsequent assessments. These assessments may be Detailed Evaluations, or evaluations needed because of aftershock activity. While the safety rules we have already discussed are still valid, some additional ones must be considered.

If an unsafe building must be entered that has not been braced, shored or otherwise stabilized, take the following steps:

- **Visually assess the damage from the exterior and evaluate the potential for collapse.** Again, the basic concept is, do not enter an unsafe building. However, conditions may arise that might overrule this concept. In that case, it is very important to first satisfy yourself that the building is not in a condition of imminent collapse. No matter the reason, evaluation teams

should never enter a building that is in an imminent collapse condition. Once you have determined that you can enter the building, stay away from open areas and rooms. If at all possible, perform the necessary work from near an interior partition where, if a collapse were to occur, there would be a good chance of voids being formed.

- **One member of the team is to remain outside to monitor the building while the other members are inside.** Only Detailed Evaluations require the team to enter buildings. Before team members enter the building, the individual who will remain outside should know exactly where the team members are. While in the building, if the strategies need to change, the person outside must be told immediately. This way, if assistance is needed, the individual outside will be able to secure the necessary assistance and be able to tell the rescuers where the individuals are within the building.
- **To the extent possible, verify stability of every room or part of the structure before entering.** This allows you to determine those portions of the building you can enter. If there is any indication of instability that represents an imminent collapse potential, do not enter that portion of the building. Once you are inside, verify the stability of each room before you enter. Again, if there is any indication that there is an imminent collapse potential for any portion of that room, do not enter.
- **Do not enter a building in which a hazardous material spill or release has occurred.** Since you are not hazardous materials experts, this may be hard to do. Before you enter a building, particularly in an industrial area, look around the exterior for a warning placard of hazardous materials being stored on the premises. The next section of this unit will discuss the warning placards. If you find the colored, diamond-shaped placard, be aware of the potential of a spill. If you see suspicious liquids on the floor or smell anything unusual when you enter a building, consider the potential before you continue. Any building that smells of gas should be vacated immediately. Also be aware of the potential for asbestos, especially in older buildings.

These safety rules are basic and simple common sense rules. However, during a response, we become so concerned with the concept of helping people we forget the basic and obvious rules. Insert this checklist into your field manual and refer to it frequently while you perform your duties.

6.2 Critical Incident Stress Disorder

Critical Incident Stress is something that affects many emergency workers after working long hours over a number of days. To help combat the effects of stress on safety assessment personnel, the program limits the time the evaluators will be on site to 3 days. However, the building department personnel you will be working with have been at it since the event. Knowing the causes and symptoms will help you to better understand what they are feeling and possibly recognize it in yourself.

Critical Incident Stress is usually caused by:

- Long hours - working 12 to 14 hour or longer shifts or performing heavy manual work for long periods.
- Emotional turbulence - all around you people are frightened, exhibiting high emotional states, and within yourself are the same high level of emotions.
- Loss - a sense of loss as you look around the area and take stock of the damage. Will the community ever recover?

- Destruction - the sense of utter devastation associated with large events like an earthquake.
- Injuries and death - working and dealing with a large number of injured or dead is a constant reminder of the incident. This can lead to feelings of futility, guilt, and frustration.
- Lack of sleep or food - probably the most common cause of CISD. As we get involved in the operation we forget to eat. At the end of the shift we are still keyed up and it is difficult to sleep.
- Separation from family and subjugation of one's own needs - The subjugation of one's needs is probably more prevalent in municipal emergency workers or those involved directly with care and sheltering. However, separation from one's family could be applicable to your recovery operations. This would most likely occur if you were unable to travel to home at the end of your shift and had to stay on site.

6.2.1 Symptoms

CISD will manifest itself in any one of the following ways and quite possibly in more than one:

- Inability to make decisions - individuals are looking to you to make a decision and tell them what to do and where to go. Your mind is "blank," and you simply don't know what to do.
- Slowness of thought and confusion - information comes to you and you don't have a clue what it is. All you see are words, and you really don't know what to do with the information.
- Inability to express one's self - you know what you want to say but you can't put it into words. This leads to frustration.
- Depression, irritability, and anxiety - can result in the feeling of futility. Why am I doing this? What difference does it make anyway?
- Exhaustion, loss of energy - The stress generated can take its toll physically as well as mentally. You physically feel ill, you have no energy to do anything. It is an effort to force yourself to continue with your duties. There is no desire to eat; the thought of food is almost too much. In many cases, it becomes difficult to sleep. All you can think about is sleep, yet when you try you are wide-awake, thinking and worrying about the operation.

Since your operations are going to be more focused on evaluating buildings and will only be working for 3 days, you will be less likely to suffer drastic affects of CISD. However, working long hours, not eating regularly, and lack of exercise can have an affect on you.

6.2.2 Stress Relieving Measures

There are several simple steps that you can take to protect yourself from suffering the effects of CISD. Some are a simple repeat of basic safety measures that were discussed in the previous section. The following are some of the measures that you can take:

- Take frequent breaks – pace yourself so you work at a constant level.
- Eat good meals at regular times – stay away from the junk food and eat well. Schedule time for several good meals a day.

- Drink plenty of fluids – keep yourself hydrated. You might even consider carrying a canteen or water jug with you.
- Freely talk about your experiences – after your shift join with your co-workers and freely discuss what you have seen and how you feel about it. In turn, be a good listener.
- Get plenty of sleep – don't stay up all night talking. Set a time for sleep and keep to it. Minimize the intake of alcohol.

Awareness is one of the key preventative measures for yourself as well as your co-workers. Watch for the signs and then take action to minimize the impact. If you see one of your co-workers exhibiting the symptoms of CISM, take him or her aside and take a break. Try and get them to talk about their feelings.

6.3 Hazardous Materials

In this section, we will look at some basic information regarding the posting of hazardous materials that you can use to increase your safety while evaluating damaged buildings. The purpose of this information is strictly for your safety. You should never be asked to identify hazardous materials. By understanding the placarding system for both the building and the individual containers, you will have a better idea of what kinds of materials you are dealing with from a very general sense. One of the first rules to remember is, don't necessarily believe what the placards are telling you. In other words, leave containers well enough alone. What these placards do not tell you is what can happen if the stored materials become mixed. The level of hazard can significantly change when containers are leaking and the materials come together.

Ideally, hazardous materials will be labeled to disclose their identity and associated hazards. However, this will not always be the case, since labels are not always required for containers with hazardous materials, labels may not be properly placed, and hazardous materials labeling regulations may not always be enforced. Mislabeling also may occur, so be cautious of even benignly labeled substances.

There are more hazardous materials labeling conventions in use than can be presented within the scope of this chapter. We will look at three labeling systems that are commonly used throughout the United States. They are: 1) the National Fire Protection Association 704M system used for materials within facilities that manufacture, process, use, or store hazardous materials; 2) the Department of Transportation system used to label hazardous materials during transport; and 3) the National Paint and Coatings Association system used to label hazardous materials within manufacturing plants and facilities.

6.3.1 National Fire Protection Association System

This system is intended to provide basic information to fire fighting, emergency, and other personnel, enabling them to make decisions whether to evacuate an area or commence emergency control procedures. This system of placarding is voluntary unless it is adopted into local codes.

The NFPA system identifies materials by their health hazard, fire hazard, reactivity, and specific hazard. The placard that is used is shown in Figure 6-1 on the following page. The color-coding on the placard is consistent and does not relate to the particular level of hazard. "Blue" denotes the health hazard, "red" denotes the fire hazard or flammability hazard, "yellow" denotes the reactivity of the materials, and "white" denotes the specific hazard. All but the specific hazard are rated by a numerical system of 0 to 4, with 4 being the worst hazard, and the level of hazard decreasing as the number decreases.

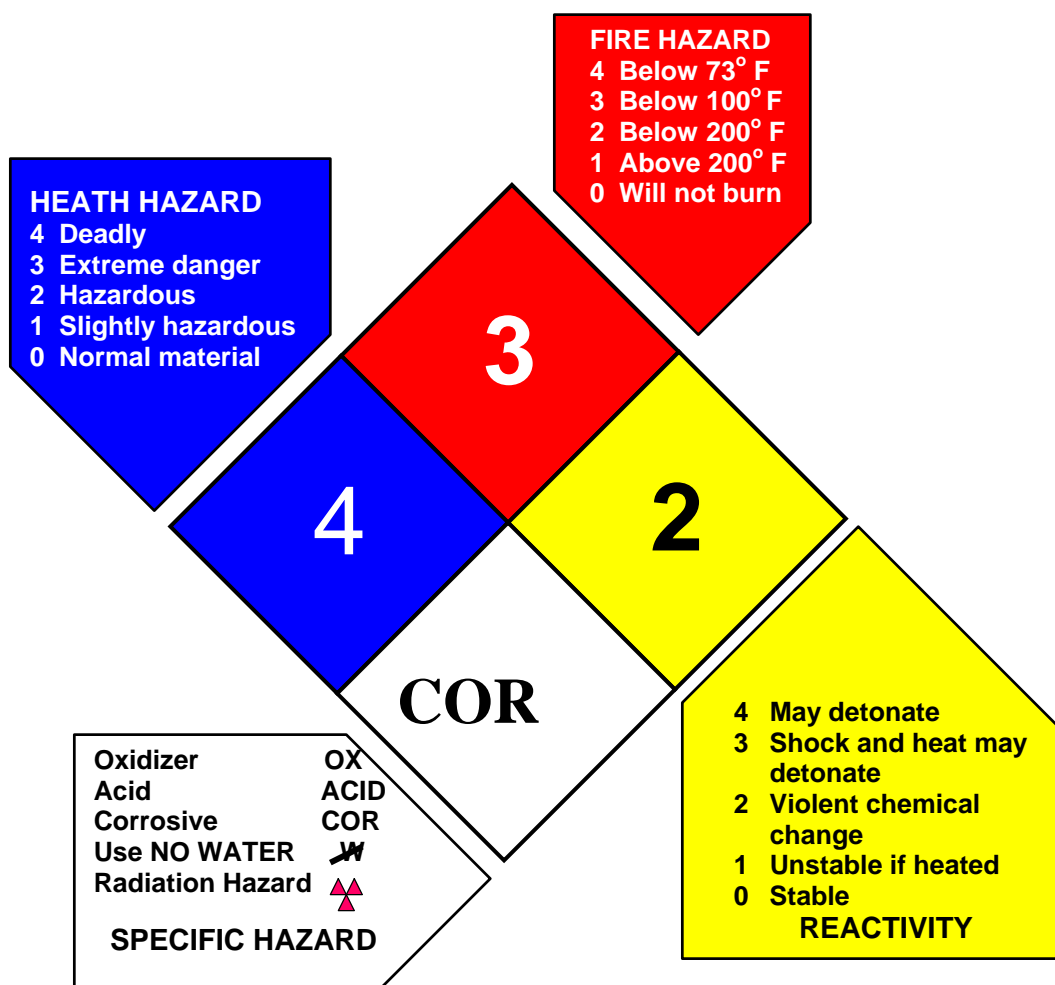


Figure 6-1 – NFPA Hazardous Materials Classification

6.3.2 Department of Transportation System

DoT regulations define a hazardous material as “a substance or material, including a hazardous substance, which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated.”

The DoT system is primarily used for labeling containers of hazardous materials that are transported. The placards are classified by hazard class names, hazard class numbers, associated color, identifying pictographs and an identification number. Figure 6-2 on page 6-8 outlines these categories and Figure 6-3, also on page 6-8 is an example of the placard. The pictographs are commonly used symbols for various hazards; for example, flames indicate fire hazard, a skull and crossbones indicates poisonous material. The identification number on the placards indicates the primary hazard class of the hazardous material contained.

HAZARD CLASS NAME	HAZARD CLASS NUMBER	COLOR
Explosives	1	Orange
Poisonous gases	2	White
Compressed gases	2	Green
Flammable gas	2	Red
Flammable liquids	3	Red
Flammable solids (dangerous when wet)	4	Blue/red/white
Oxidizers	5	Yellow
Poison liquids	6	White
Radioactive substances	7	Yellow/white
Corrosives	8	Black/white
Miscellaneous hazardous materials	9	

Figure 6-2 - Department Of Transportation Hazardous Materials Classification



Figure 6-3 - Examples of DoT Placards

This figure provides some examples of the placards used in the DoT system. Additionally, containers with materials that have multiple classifications would have a placard for each classification. As with the building placards, remember that these placards indicate what is supposed to be in the container. Just because a placard indicates some rather benign materials, you cannot guarantee that the container actually contains that particular material.

6.3.3 National Paint and Coatings Association System

The National Paint and Coatings Association has developed a Hazardous Materials Information System (HMIS) for employers to use to comply with the California hazard communication system. The labels are divided into four: health, flammability, reactivity, and personal protection. Figure 6-4 on the following page shows what the placard looks like and includes OSHA's designation for a potentially infectious material.



Figure 6-4 – National Paint and Coatings Association HMIS and OSHA Placards

Notes:

BUILDING ASSESSMENT SAFETY CHECKLIST

General

- ☐ Be aware and cautious.
- ☐ Always work in teams of at least 2 individuals.
- ☐ Always wear a hard hat.

Initial Assessment of Building That Is Not Posted

- ☐ Do not enter obviously unsafe buildings.
- ☐ Do not enter buildings or access appendages of buildings located on potentially unstable slopes.
- ☐ Do not enter buildings where falling hazards exist that could block exits from the building.
- ☐ If the building is leaning or out-of-plumb, do not enter unless it is absolutely necessary to determine the appropriate posting. When inside or outside try to stay on the side of the building away from the direction it is leaning.
- ☐ Before entering any building make sure exit doors are fully operable.
- ☐ Make sure that exits are clear and there are no falling hazards that could obstruct the pathway.
- ☐ Be aware of hanging or exposed electrical wires.

Subsequent Assessments

- ☐ If an unsafe building must be entered which has not been stabilized, take the following steps:
 - Visually assess the damage from the exterior and evaluate the potential for collapse.
 - One member of the team is to remain outside to monitor the building while other team members are inside.
 - To the extent possible, verify stability of every room or part of the structure before entering.
- ☐ Do not enter a building where a hazardous materials spill or release has occurred.
- ☐ Do not enter buildings, or access any appendage of a building, located on a hillside known to be moving or where slide potential exists.

BUILDING ASSESSMENT SAFETY CHECKLIST

GENERAL

- ☐ Be aware and cautious.
- ☐ Always work in teams of at least 2 individuals.
- ☐ Always wear a hard hat.

INITIAL ASSESSMENT OF BUILDING, WHICH IS NOT POSTED

- ☐ Do not enter obviously unsafe buildings.
- ☐ Do not enter buildings or access appendages of buildings located on potentially unstable slopes.
- ☐ Do not enter buildings where falling hazards exist that could block exits.
- ☐ If the building is leaning or out-of-plumb, do not enter unless it is absolutely necessary to determine the appropriate posting. When inside or outside try to stay on the side of the building away from the direction it is leaning.
- ☐ Before entering any building make sure exit doors are fully operable.
- ☐ Make sure that exits are clear and there are no falling hazards, which could obstruct the pathway.
- ☐ Be aware of hanging or exposed electrical wires.

SUBSEQUENT ASSESSMENTS

- ☐ If an unsafe building must be entered which has not been stabilized, take the following steps:
 1. Visually assess the damage from the exterior and evaluate the potential for collapse.
 2. One member of the team is to remain outside to monitor the building while other team members are inside.
 3. To the extent possible, verify stability of every room or part of the structure before entering.
- ☐ Do not enter a building where a hazardous materials spill or release has occurred.
- ☐ Do not enter buildings, or access any appendage of a building, located on a hillside known to be moving or where slide potential exists.

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APPENDIX A

EVALUATION FORMS

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ATC-20 Rapid Evaluation Safety Assessment Form

Inspection

Inspector ID: _____ Inspection date and time _____ ☐ AM ☐ PM
 Affiliation: _____ Areas inspected: ☐ Ext. only ☐ Exterior and interior

Building Description

Building Name: _____
 Address: _____
 Building contact/phone: _____
 Number of stories above ground: ____ below ground: ____
 Approx. "Footprint area" (square feet) _____
 Number of residential units: _____
 Number of residential units not habitable: _____

Type of Construction

☐ Wood frame ☐ Concrete shear wall
☐ Steel frame ☐ Unreinforced masonry
☐ Tilt-up concrete ☐ Reinforced masonry

Primary Occupancy

☐ Dwelling ☐ Commercial ☐ Govt.
☐ Other residential ☐ Offices ☐ Historic
☐ Public assembly ☐ Industrial ☐ School
☐ Emergency Services ☐ Other: _____

Evaluation

Investigate the building for the conditions below and check the appropriate column.

Estimated Building Damage (excluding contents)

Observed Conditions:

Minor/None

Moderate

Severe

☐ None

Collapse, partial collapse, or building off foundation
 Building or story leaning
 Racking damage to walls, other structural damage
 Chimney, parapet, or other falling hazard
 Ground slope movement or cracking
 Other (specify) _____

☐
☐
☐
☐
☐
☐

☐
☐
☐
☐
☐
☐

☐
☐
☐
☐
☐
☐

☐ 0 - 1%
☐ 1 - 10%
☐ 10 - 30%
☐ 30 - 60%
☐ 60 - 100%
☐ 100%

Comments: _____

Posting

Choose a posting based on the evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an UNSAFE posting. Localized *Severe* and overall *Moderate* conditions may allow a RESTRICTED USE posting. Post INSPECTED placard at main entrance. Post RESTRICTED USE and UNSAFE placards at all entrances.

☐ INSPECTED (Green placard) ☐ RESTRICTED USE (Yellow placard) ☐ UNSAFE (Red placard)

Record any use and entry restrictions exactly as written on placard _____

Further Actions Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

☐ Detailed evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other: _____
☐ Other recommendations: _____
 Comments: _____

ATC-20 FIXED EQUIPMENT CHECKLIST

Facility: Name: _____ _____ Address: _____ _____ _____	INSPECTOR: Inspector ID _____ Affiliation _____ INSPECTION DATE: Mo/day/year _____ Time _____ am pm
--	--

CHECKLIST:	Equipment Damaged			
General Items:	No	Yes Operable	Yes Inoperable	Comments
Main boilers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Chillers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Emergency generators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Fuel tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Battery racks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Fire pumps	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
On-site water storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Communications equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Main transformers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Main electrical panels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Elevators (traction)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other fixed equipment:				
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Special Concerns for Hospitals and Other Health Care Facilities:				
Radiation equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Toxic chemical storage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Liquid Oxygen tanks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

RECOMMENDATIONS: _____

ATC-20 Detailed Evaluation Safety Assessment Form

Inspection Inspector ID: _____ Affiliation: _____ Inspection date and time: _____ <input type="checkbox"/> AM <input type="checkbox"/> PM	Final Posting from page 2 <input type="checkbox"/> Inspected <input type="checkbox"/> Restricted Use <input type="checkbox"/> Unsafe
---	--

Building Description Building Name: _____ Address: _____ Building contact / phone: _____ Number of stores above ground ____ below ground ____ Approx. "Footprint area" (square feet) _____ Number of residential units: _____ Number of residential units not habitable: _____	Type of Construction <input type="checkbox"/> Wood frame <input type="checkbox"/> Concrete shear wall <input type="checkbox"/> Steel frame <input type="checkbox"/> Unreinforced masonry <input type="checkbox"/> Tilt-up concrete <input type="checkbox"/> Reinforced masonry <input type="checkbox"/> Concrete frame <input type="checkbox"/> Other: _____ Primary Occupancy <input type="checkbox"/> Dwelling <input type="checkbox"/> Commercial <input type="checkbox"/> Govt. <input type="checkbox"/> Other residential <input type="checkbox"/> Offices <input type="checkbox"/> Historic <input type="checkbox"/> Public Assembly <input type="checkbox"/> Industrial <input type="checkbox"/> School <input type="checkbox"/> Emergency Services <input type="checkbox"/> Other: _____
--	---

Evaluation Investigate the building for the conditions below and check the appropriate column. There is room on the second page for a sketch.				
	Minor/None	Moderate	Severe	Comments
Overall hazards:				
Collapse or partial collapse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Building or story leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Structural hazards:				
Foundations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Roofs, floors, (vertical loads)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Columns, pilasters, corbels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Diaphragms, horizontal bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Walls, vertical bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Precast connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Nonstructural hazards:				
Parapets, ornamentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Cladding, glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ceilings, light fixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Interior walls, partitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Elevators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Stairs, exits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Electric, gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Geotechnical hazards:				
Slope failure, debris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ground movement, fissures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
General Comments: _____				

Continued on page 2

ATC-20 Detailed Evaluation Safety Assessment Form Page 2

Building name: _____ Inspector ID: _____

Sketch (optional)
Provide a sketch of the building or damage portions. Indicate damage points.

If requested by the jurisdiction,
estimate building damage
(repair cost ÷ replacement
cost, excluding contents)

- ☐ None
☐ 0 - 1%
☐ 1 - 10%
☐ 10 - 30%
☐ 30 - 60%
☐ 60 - 100%
☐ 100%

[illegible]

Posting

If there is an existing posting from a previous evaluation, check the appropriate box. Previous posting:

- ☐
- INSPECTED
- ☐
- RESTRICTED USE
- ☐
- UNSAFE Inspector ID: _____ Date: _____

If necessary, revise the posting based on the new evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an Unsafe posting. Local *Severe* and overall *Moderate* conditions may allow a Restricted Use posting. Indicate the current posting below and at the top of page one.

- ☐ INSPECTED (Green placard) ☐ RESTRICTED USE (Yellow placard) ☐ UNSAFE (Red placard)

Record any use and entry restrictions exactly as written on placard: _____

Further Actions: Check the boxes below only if further actions are needed.

- ☐ Barricades needed in the following areas: _____

- ☐
- Engineering Evaluation recommended:
- ☐
- Structural
- ☐
- Geotechnical
- ☐
- Other: _____

- ☐ Other recommendations: _____

Comments: _____

SAP Evaluator Tracking Form

Jurisdiction:

Address:

Contact Name: _____

Phone #:

E-mail:

Fax #:[illegible]

Jurisdiction _____ **Phone #** _____

Address _____ **Fax #** _____

Contact Name _____ **E-mail address** _____

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APPENDIX B MODEL DISASTER PLAN

**CALIFORNIA STATE BUILDING OFFICIALS
MODEL DISASTER PLAN**

DEPARTMENT OF BUILDING AND SAFETY

**STANDARD OPERATING PROCEDURES
for
EMERGENCY OPERATIONS**

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DEFINITIONS

EMERGENCY OPERATIONS CENTER (EOC): A facility for the centralized direction and control of the emergency organization and the general public at a local, county, state, or federal level. The coordination of all official decisions and actions would also take place at the EOC.

EMERGENCY RESPONSE: The actions taken to mitigate or alleviate the results of any natural or man-made emergency.

EMERGENCY SHELTER: Temporary housing facility for the care of displaced persons during an emergency.

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA): Federal level agency responsible for coordinating federal assistance to state and local jurisdictions.

INCIDENT MANAGER (IM): Official, at local level, in charge of all operations during an emergency (usually a city manager or county chief administrative officer).

INITIAL SITUATION REPORT: Report required in first few hours following emergency by city or county Emergency Management Division and the state OES, advising of a potential or actual disaster and mutual aid and equipment requested.

INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS (ICBO): An organization comprised of local (city and county) jurisdictions and represented by building officials employed at various levels of government.

MUTUAL AID AGREEMENT: Two or more parties agree to furnish resources and to render services to each party of the agreement in their response to any proclaimed emergency. Access is through the Operational Area and State OES.

OFFICE OF EMERGENCY SERVICES (OES): State level agency responsible for coordinating assistance to include mutual aid, Safety Assessment Program resources, etc.

OFFICE OF EMERGENCY SERVICES – DAMAGE ASSESSMENT REPORT: Detailed information required by city or county Emergency Management Division and state OES to obtain state and/or federal disaster declaration and assistance as applicable. This report should be periodically submitted, as new information is available after initial situation report has been filed.

PROCLAIMED EMERGENCY: A proclamation made at the local or State level requesting mutual aid assistance; defining the nature of the disaster and outlining special assistance needed. This designation differs from a federal disaster declaration: only the President of the United States can **declare** a disaster.

SAFETY ASSESSMENT: Determining the condition of a structure or lifeline for continued occupancy or use.

STRUCTURAL ENGINEERS ASSOCIATION OF CALIFORNIA (SEAOC): A statewide association that provides engineers as a part of the private sector resources to assist local jurisdictions with safety assessment. Part of the State resource pool, registered and activated by the Office of Emergency Services.

STRUCTURE-BY-STRUCTURE SURVEY: A detailed survey in which damage assessment inspectors inspect each damaged structure individually to determine whether it is safe for occupancy and to obtain a more accurate estimate.

WINDSHIELD SURVEY: A drive-through survey in which inspectors drive or walk through a disaster-stricken area to obtain general information and initial financial estimates of the damage inflicted.

CALIFORNIA STATE BUILDING OFFICIALS
DEPARTMENT OF BUILDING AND SAFETY - STANDARD OPERATING PROCEDURES

**Standard Operating Procedures
Administrative**

CALIFORNIA STATE BUILDING OFFICIALS
DEPARTMENT OF BUILDING AND SAFETY
STANDARD OPERATING PROCEDURES

ADMINISTRATION

I. PURPOSE

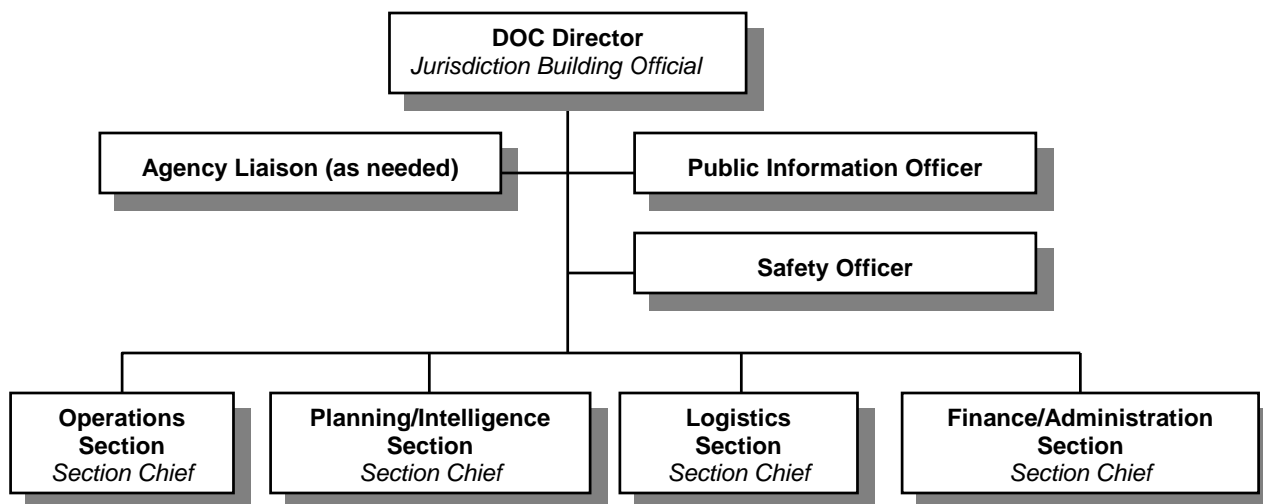
The purpose of this document is to establish an operational structure that will allow the department to respond to an emergency situation while maintaining day-to-day department functions, though potentially at a reduced level. This Standard Operating Procedure (SOP) will provide the staff assigned to the Building and Safety Department procedures, organizational structure, and assignments for the emergency period.

II. OPERATIONAL DEFINITIONS

- A. The department will function as a field command during any emergency operation that involves buildings and structures and the potential safety of those buildings and structures for continued occupancy.
- B. The Building and Safety Department Operations Center (DOC) will remain in contact with the jurisdiction's EOC providing regular updates on damage, resource needs, logistical support requirements, and any other information as requested.

III. ORGANIZATIONAL STRUCTURE

- A. For all emergency operations involving Building and Safety, the Director, or his/her appointed representative will fill the role of DOC Director.
- B. In accordance with the jurisdiction's Emergency Plan, the Department of Building and Safety will begin emergency operations for any event, natural, technological, or "manmade" which impacts buildings and structures. Under such emergency operations, the department will assume the following organizational structure:
 - 1. **Management Staff and Position Descriptions** (The position descriptions are general and need to be developed by the Department into specific job duties.)



ADMINISTRATION

DOC Director is responsible for incident activities including the development and implementation of strategic decisions for approving the ordering and release of resources. Upon notification from the appropriate jurisdictional authority, he/she shall enact the ***Emergency Building Inspection Plan***. Responsibilities include:

- Alert Supervisors.
- Report to the Emergency Operations Center.
- Obtain all available information from the EOC.
- Determine and establish a communication system.
- If requested by police and fire, determine assistance needed to inspect essential buildings and designated shelters.
- Determine degree of mobilization (number of staff needed) and where they will be needed.
- Identify priority of assignments.
 - Supplemental assistance to police and fire as requested,
 - Inspection of essential buildings,
 - Start rapid assessment of damaged areas, and
 - Start detailed assessment by inspection zones.
- Coordinate plans and actions with EOC as required.
- In cooperation with supervisors, coordinate field and office response and equipment.
- Provide information for news releases as required in coordination with the IM and the Public Information Officer.

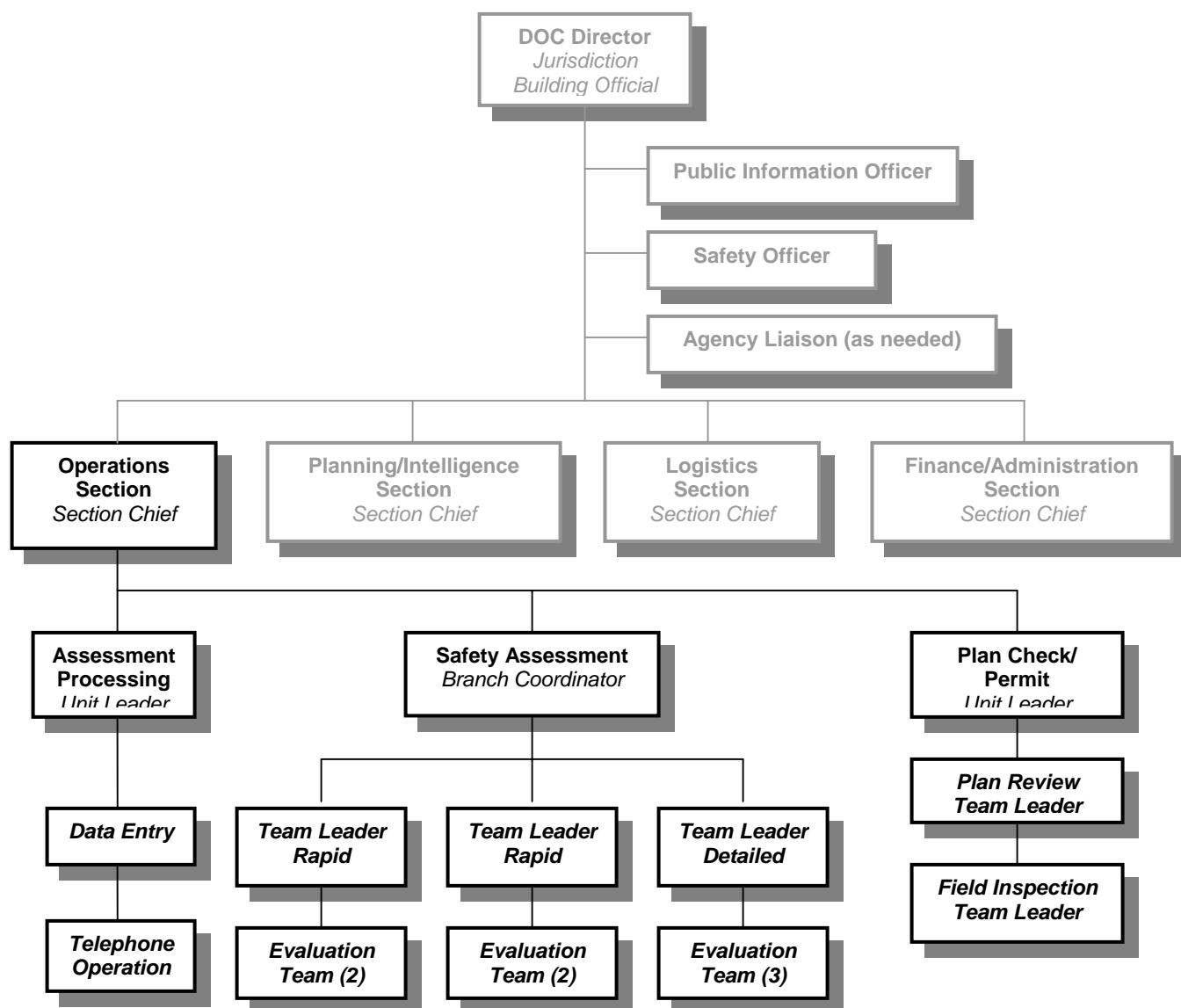
Safety Officer is responsible for monitoring and assessing hazardous and unsafe situations and developing measures for assuring personnel safety. The Safety Officer will correct unsafe acts or conditions through the regular line of authority, although the Officer may exercise emergency authority to stop or prevent unsafe acts when immediate action is required. The Officer maintains awareness of active and developing situations, approves the medical plan and includes safety messages in each incident action plan.

ADMINISTRATION

Public Information Officer is responsible for the formulation and release of information about the incident to the news media and other appropriate agencies and organizations.

Liaison Officer is the point of contact for assisting and cooperating Agency Representatives. This includes Agency Representatives from other agencies, *i.e.*, Red Cross, law enforcement, public works, engineering organizations, etc.

2. **Operations Section and Position Descriptions** (The position descriptions are general and need to be developed by the Department into specific job duties.)



ADMINISTRATION

Operations Section Chief is responsible for the management of all operations directly applicable to the primary mission. The Operations Section Chief: activates and supervises organization elements in accordance with the incident action plan; directs its execution; requests and releases resources; makes expedient changes to the incident action plan as necessary; and reports such to the DOC Director. Responsibilities include:

- Report to office or designated location as determined by the DOC Director.
- Notify all necessary staff to report to the Disaster Center.
- As directed by the DOC Director, coordinate the field inspection operations.
- As directed by the DOC Director, organize and supervise the following:
 - Supplemental emergency assistance to Police and Fire.
 - Survey/inspect essential facilities (hospitals, schools, etc.)
 - Conduct rapid assessment inspections.
 - Conduct detailed assessment inspections.
- With building inspection staff:
 - Provide for the inspection of essential facilities as soon as possible.
 - Designate areas to be inspected.
 - Prepare and log all duty rosters and assignment sheets.
- Ensure accurate record keeping (including man-hours, assignments, and equipment used.)
- Arrange with the Logistics Section Chief for transportation for field staff as necessary.
- Brief staff on nature of emergency, assignments, and safety procedures.
- Coordinate with the Logistics Section Chief for distribution of necessary equipment, placards, and field guides for inspection of buildings.
- Report to the DOC Director upon the completion of major phases of the assessment or changes in field conditions.
- Maintain communication with field staff.
- Report to the DOC Director any buildings requiring immediate shoring or demolition permits.

ADMINISTRATION

- Ensure accurate and complete record keeping by disaster inspectors.

Assessment Processing Unit Leader is responsible for implementation of the portion of the incident action plan that relates to office support activities. The office support activities for the Operations Section are in direct support of the Safety Assessment Unit. Responsibilities include:

- Report to designated command as directed by the Operations Section Chief.
- Notify all necessary staff (to the extent possible).
- As directed by the Operations Section Chief, coordinate the office response.
- Organize and supervise clerical and counter response to phones (if operable).
- Prepare office duty rosters and assignments.
- Brief office staff on emergency and assignments.
- Assist Field Unit Coordinator as needed.
- Make assignments to additional staff not delegated to emergency.
- Document all assigned tasks, staff and man-hours delegated to the emergency.
- Document and refer public's reports of damaged buildings to the Field Unit Coordinator and the Operations Section Chief.
- Distribute pertinent information to the public via the Operations Section Chief, DOC Director, EOC, and Public Information Officer.
 - Explanation of building placard postings.
 - Citizen assistance phone numbers.

Safety Assessment Unit Leader is responsible for implementation of the portion of the incident action plan that relates specifically to safety assessment operations and managing the staff. Responsibilities include:

- Report to designated command as directed by the Operations Section Chief.
- Notify all necessary staff (to the extent possible).
- As directed by the Operations Section Chief, coordinate the field response.
- Organize and supervise field teams of safety assessment inspectors.

ADMINISTRATION

- Prepare duty rosters and assignments.
- Brief field staff on emergency and assignments.
- Make assignments to additional staff not delegated to emergency.
- Document all assigned tasks, staff and man-hours delegated to the emergency.
- Receive from Assessment Processing Unit Coordinator all reports from the public of damaged buildings.
- Distribute pertinent information to the public via the Operations Section Chief, DOC Director, EOC, and Public Information Officer.

Safety Assessment Inspectors shall make field inspections as directed. Responsibilities include:

- Report as directed to the staff supervisor at an assigned location.
- Ensure personal safety before conducting inspections or providing emergency assistance.
- Provide supplemental emergency assistance to police and fire as directed by Field Unit Coordinator.
- Inspect essential facilities (hospitals, schools, police, fire, and designated shelter areas, etc.).
- Conduct rapid assessment survey as directed:
 - Drive or walk through, street-by-street, the area designated by supervisor.
 - Estimate the amount of damage (by square footage determination).
 - Forward information to Field Coordinator.
- Conduct structure-by-structure detailed assessment survey:
 - Inspect each damaged building in designated area (exterior and interior).
 - Report without delay to the Field Unit Coordinator all buildings that require immediate shoring or demolition.
 - Post signs to indicate status of inspected buildings in conspicuous locations at all identifiable entrances. Signs must also be visible from streets and driveways. Determination of building safety and usability shall be the best judgment of the situation by the inspector based on guidance contained in ATC-20.

ADMINISTRATION

- Refer all inquires concerning federal financial assistance or shelter assistance to the appropriate Disaster Assistance Center or designated citizen assistance telephone number.
- Communicate with Field Unit Coordinator as directed.
- Maintain complete and accurate records.

Specialty Teams are likely to be engineers, building inspectors, electrical inspectors, and mechanical inspectors. The members form a team of inspectors from which the Operations Section Chief and Safety Assessment Unit Coordinator can choose to inspect unique situations that develop. The Specialty Inspector's responsibility shall be the following:

- Report to assigned location as directed.
- Assist in all assigned tasks.
- Conduct all assigned inspections.
- Supervise appointed individuals.
- Maintain complete and accurate records.

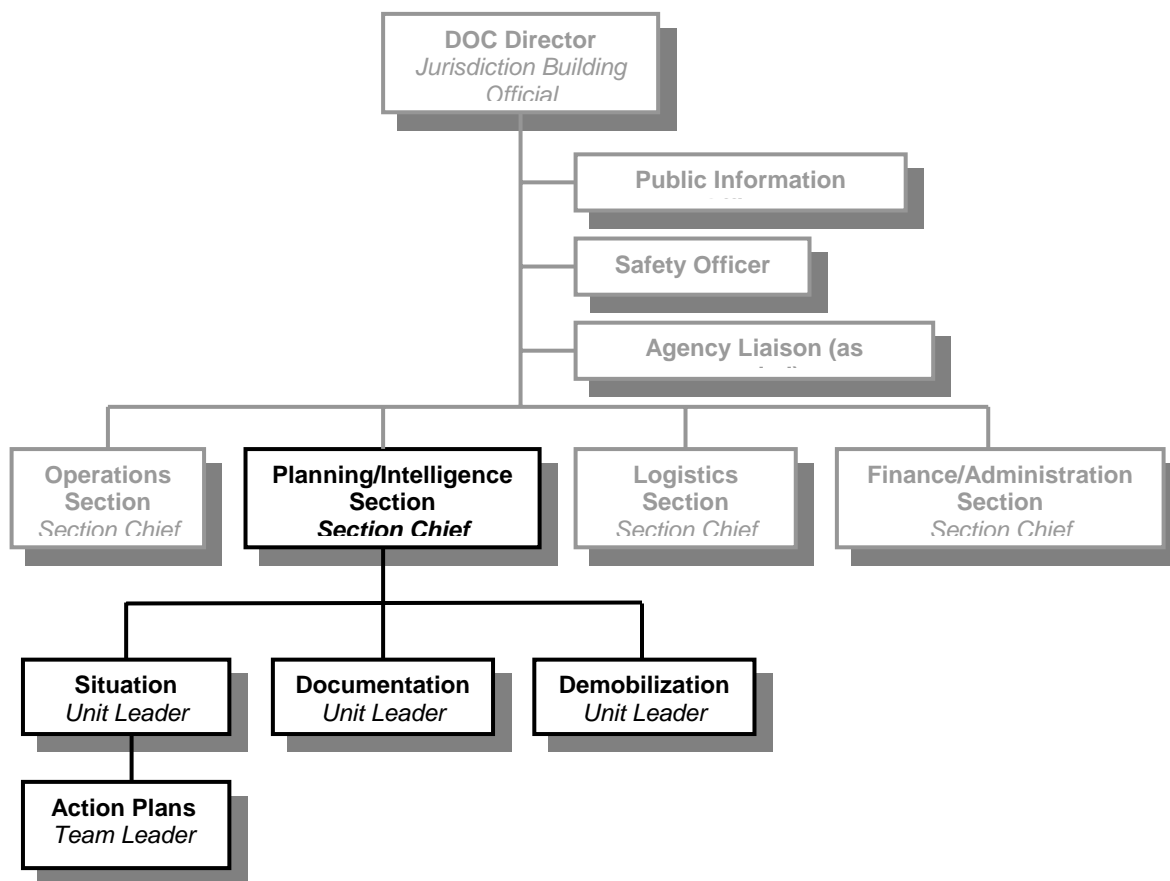
Plan Check and Permitting Unit Leader is responsible for the day-to-day workload of the Department while staff is re-directed to the Safety Assessment Operation. Duties will include management of the staff, develop change of placard procedures; develop repair criteria.

3. **Planning and Intelligence Section and Position Descriptions** (The position descriptions are general and need to be developed by the Department into specific job duties.)

Planning/Intelligence Section Chief is responsible for the collection, evaluation, dissemination and use of information about the development of the incident and status of resources. Information is needed to: 1) understand the current situation, 2) predict probable course of incident events, and 3) prepare alternative strategies and control operations for the incident.

Situation Unit Leader is responsible for the collection and organization of incident status and situation information and evaluation, analysis, and display of that information for use by all the staff. Additionally, responsible for conducting the incident action planning meetings at the end of each operational period and developing the incident action plan which shows all objectives of all sections for the next operational period.

ADMINISTRATION

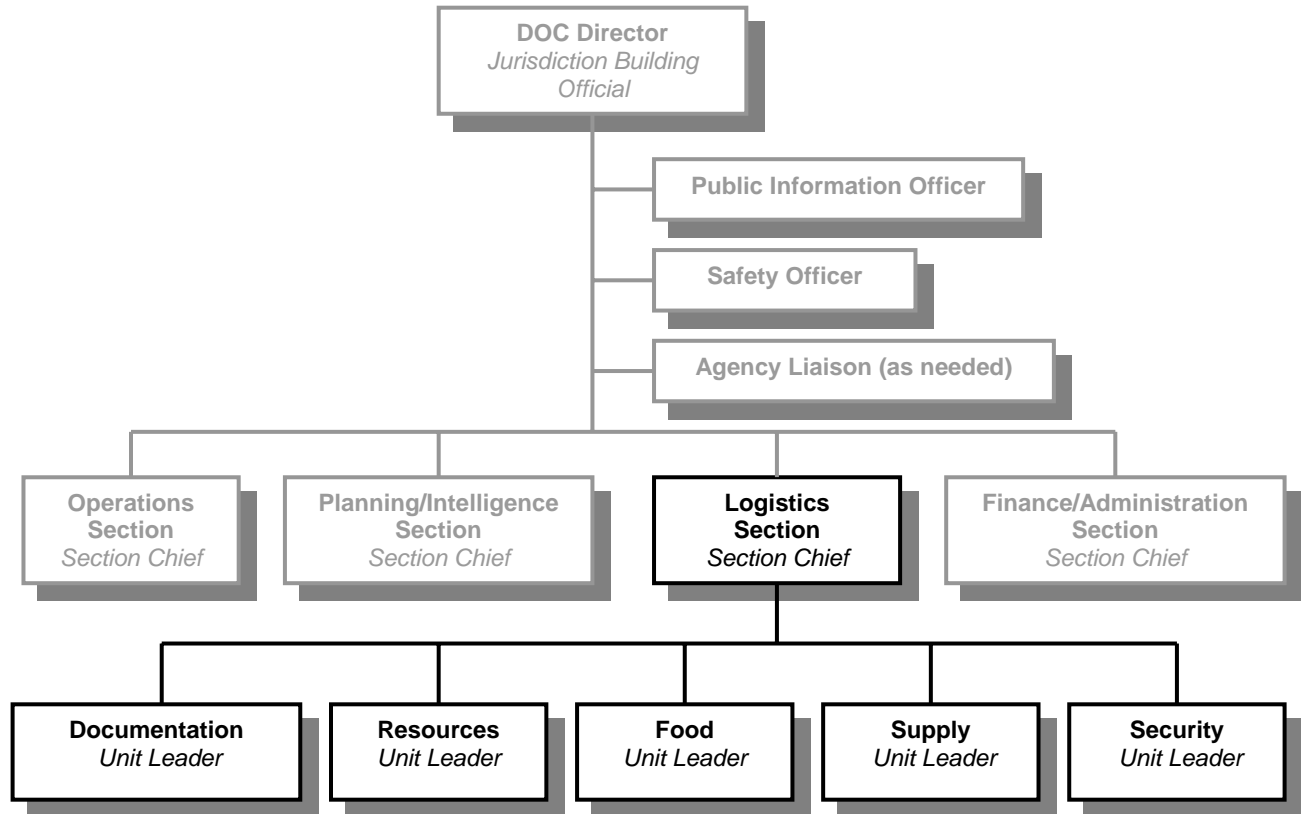


Documentation Unit Leader is responsible for: 1) maintaining accurate and complete incident files; 2) providing duplication services to incident personnel; and 3) packing and storing incident files for legal, analytical, and historical purposes.

Demobilization Unit Leader is responsible for the preparation of the demobilization plan and assisting incident sections and units in ensuring that an orderly, safe, and cost effective movement of personnel and equipment is accomplished from the incident.

ADMINISTRATION

4. **Logistics Section and Position Descriptions** (The position descriptions are general and need to be developed by the Department into specific job duties.)



Logistics Section Chief is responsible for providing facilities, services, and material in support of the incident. The Logistics Chief participates in development and implementation of the incident action plan and activates and supervises the branches and units of the Logistics Section. Responsibilities include:

- Report to office or designated location as determined by the DOC Director.
- Notify all necessary staff to report to the Disaster Center.
- As directed by the DOC Director coordinate all support functions for field and office operations.
- Coordinate the obtaining, provision, and accounting for transportation for field staff, equipment required by field staff, and supplies and equipment for office staff.
- Brief staff on nature of emergency, assignments, and safety procedures.
- Ensure accurate and complete record keeping by logistics staff.

ADMINISTRATION

Communications Unit Leader is responsible for developing plans for the effective use of incident communications equipment and facilities; installing and testing of communications equipment; supervision of the incident communications center; distribution of communications equipment to incident personnel; and the maintenance and repair of communications equipment.

Resources Unit Leader is responsible for: 1) establishing all incident check-in activities; 2) the preparation and processing of resource status change information; 3) the preparation and maintenance of displays, charts, and lists which reflect the current status and location of resources, transportation, and support vehicles; and 4) to maintain a master check-in list of resources assigned to the incident.

Food Unit Leader is responsible for determining feeding requirements at all incident facilities; menu planning; determining cooking facilities required; food preparation; serving; providing potable water; and general maintenance of the food service areas.

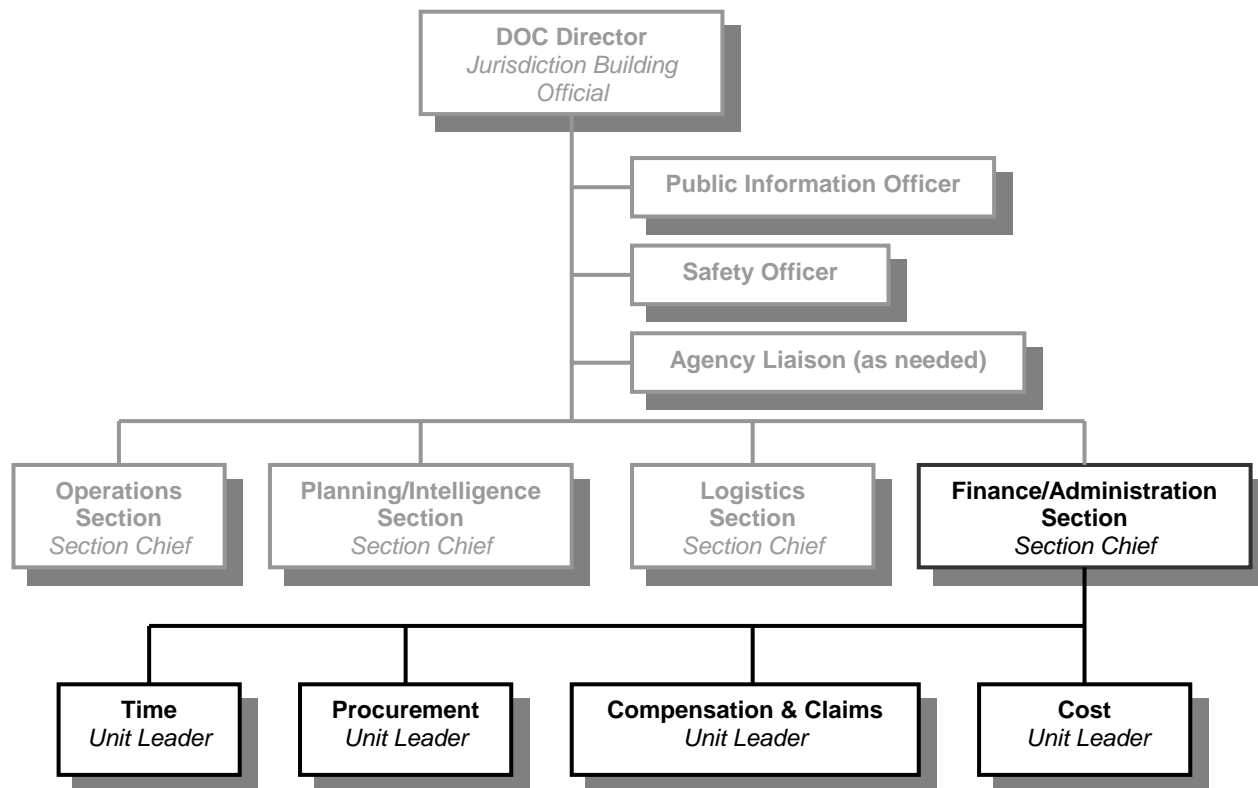
Supply Unit Leader is primarily responsible for ordering personnel, equipment, and supplies; receiving, and storing all supplies for the incident; maintaining an inventory of supplies; and servicing non-expendable supplies and equipment. Responsibilities include:

- Supervise issuance of emergency supplies and forms.
- Obtain additional supplies as needed.
- Issue I.D. cards as instructed.
- Maintain records of supplies and forms used and acquired during the disaster.
- Coordinate the transportation of supplies to field command posts.
- Arrange for the transportation of necessary staff.
- Arrange for meal distribution to staff as needed.

Security Unit Leader is responsible for the provision of safeguards needed to protect personnel and property from loss or damage.

ADMINISTRATION

5. **Finance and Administration Section and Position Descriptions** (The position descriptions are general and need to be developed by the Department into specific job duties).



Finance/Administration Section Chief is responsible for all financial and cost analysis aspects of the incident and for supervising members of the Finance and Administration Section.

Time Unit Leader is responsible for equipment and personnel time recording and for managing the commissary operation.

Procurement Unit Leader is responsible for administering all financial matters pertaining to vendor contracts.

Compensation and Claims Unit Leader is responsible for the overall management and direction of all Compensation for Injury Specialists and Claims Specialists assigned to the incident.

Cost Unit Leader is responsible for collecting all cost data, performing cost effectiveness analyses and providing cost estimates and cost saving recommendations for the incident.

**Standard Operating Procedures
Phase - 1 Initial Operations**

CALIFORNIA STATE BUILDING OFFICIALS
DEPARTMENT OF BUILDING AND SAFETY
STANDARD OPERATING PROCEDURES

PHASE - 1

I. PURPOSE

The purpose of this document is to provide the Staff/Workers assigned to the Building and Safety Department with a Standard Operating Procedure (SOP) for the first 48-hours of an emergency. This SOP will use the basic procedures of ATC-20 safety assessment documents with changes designed to better fulfill the needs of the jurisdiction and the Building and Safety Department.

II. NOTIFICATION

When an emergency is proclaimed by the City Council of a Jurisdiction, the following Department personnel should respond to the Building and Safety Department and assume their pre-assigned positions. (See page 15 for sample notification list.)

III. OPERATIONS

A. During the First Phase (48-hours) all responding department personnel of the Building and Safety Department will engage in what will be referred to as "WINDSHEILD SURVERY and RAPID SAFETY EVALUATION" procedures. This will involve key areas of the City that are known hazards or are vital to emergency disaster recovery operations. These areas are as follows:

1. City Hall and offices
2. Police and "911" operations
3. Fire Stations
4. Hospitals
5. Nursing homes
6. Schools
7. Community Center
8. Main Street business district
9. All other buildings

B. To assist this operation, forms should be located within disaster boxes in all department vehicles. (A suggested list of equipment within each vehicle is listed on page 16).

C. When assigned areas have been completed for phase one, all "Windshield Survey and Rapid Evaluation" forms should be turned over to the Safety Assessment Unit Leader who will deliver all reports to the Operations Section Chief.

D. Each jurisdiction should be divided into Zones, Sections, or Areas for better control of the evaluations from the "Windshield Survey and Rapid Evaluation" operations.

E. Assigned areas for "Windshield Survey and Rapid Evaluation" inspections:

- Zone – 1
- Zone – 2

PHASE - 1

Zone – 3
Zone – 4
Zone – 5
Zone – 6
Zone – 7

- F. At this point, the First Phase plan for the emergency is completed. All personnel assigned to the Building and Safety Department will respond to the Building Department Operations Center located at:

and begin Phase 2 of the Emergency Operations Plan.

SAMPLE PHONE LIST
BUILDING AND SAFETY DEPARTMENT

<u>PERSONNEL</u>	<u>OFFICE</u>	<u>HOME</u>	<u>CELLULAR</u>	<u>PAGER</u>
------------------	---------------	-------------	-----------------	--------------

<u>DOC DIRECTOR</u>				
---------------------	--	--	--	--

<u>OPERATIONS</u> <u>SECTION CHIEF</u>				
---	--	--	--	--

<u>PLANNING/INTELLIGENCE</u> <u>SECTION CHIEF</u>				
--	--	--	--	--

<u>LOGISTICS</u> <u>SECTION CHIEF</u>				
--	--	--	--	--

<u>FINANCE/ADMINISTRATION</u> <u>SECTION CHIEF</u>				
---	--	--	--	--

PHASE - 1

DISASTER EMERGENCY VEHICLE EQUIPMENT BOX

100	Rapid Evaluation Safety Assessment Forms
100	Detailed Evaluation Safety Assessment Forms
50	Damage Summary Forms
50	Windshield Survey Summary Forms
25	Windshield Survey Tally Sheets
50	"INSPECTED" Placards (green)
50	"RESTRICTED USE (or LIMITED ENTRY)" Placards (yellow)
50	"UNSAFE" Placards (red)
1	ATC-20-1 Field Manual
1	City map
1	Clipboard
1	Copy of Building and Safety SOP
1	Roll yellow barrier tape
1	T-50 stapler and staples
1	Roll duct tape

**Standard Operating Procedures
Phase - 2 Operations Plan**

CALIFORNIA STATE BUILDING OFFICIALS
DEPARTMENT OF BUILDING AND SAFETY
STANDARD OPERATING PROCEDURES

PHASE - 2

- I. **Initial Actions** - The Second Phase of the emergency procedures for a Jurisdiction will be establishing a "**Department Operations Center**" for the Building and Safety Department to complete a detailed assessment of the emergency and record all operations as to the following:
- A. Buildings inspected:
 - 1. Windshield Surveys
 - 2. Rapid Evaluations (Safety Assessment)
 - 3. Detailed Evaluations (Safety Assessment)
 - 4. Engineering Reports of Damaged Buildings
 - B. Damage levels of emergency
 - C. Control of additional Safety Assessment Evaluators assigned to the Building and Safety Department for safety assessment.
 - D. Equipment used during operations
 - E. Number of outside workers that assisted in response operations
 - F. Registration of Safety Assessment Evaluators, if needed, and time worked
 - G. Summary of response operations costs to Building Department
 - H. Summary of activities during response operations
 - I. Daily activity reports
 - J. Daily safety assessment reports
 - K. List of safety assessment inspections
 - L. Equipment checkout - check-in reports
 - M. Inventory of equipment damaged and received

PHASE - 2

II. REGISTRATION – Safety Assessment Evaluators

- A. All disaster workers for the Building and Safety Department will be registered as Disaster Service Workers and given a loyalty oath if they have not been previously registered. They also will be issued a "Disaster Operations" identification tag and holder and deputized as a Deputy Building Inspector. Registration, if needed, applies to all non-jurisdiction persons working in any capacity for a Building and Safety Department Emergency Response Operation.
- B. Registration forms
 - 1. Limited access to all areas involving operations to be used for all City employees or Volunteers who are assigned to response functions within the Building and Safety response operations.
 - 2. Unlimited Access—Field Operations: shall be used for all Post-Disaster Safety Assessment Evaluators assigned to Safety Assessment inspections. These inspectors will have unlimited access to field areas assigned ONLY and should only be assigned inspection areas.
 - 3. Unlimited Access—All Areas: shall be issued to the following Post-Disaster Safety Assessment Evaluators:
 - a. Engineers
 - b. Architects
 - c. State Office of Emergency Services (OES)
 - d. Federal Emergency Management Agency (FEMA)
 - e. Building and Safety Department, City of
 - f. Post-Disaster Safety Assessment evaluation team members
- C. Registration Materials List
 - 1. Disaster Service Worker registration and Loyalty Oath sheet
 - 2. Identification Card with plastic holder
 - 3. Vehicle window I.D. card
 - 4. Equipment tag
 - 5. Identification number control tag

PHASE - 2

D. Registration Identification Number

1. Every worker assigned to the Building and Safety Emergency Response Operation will be issued an identification number, which will be recorded on the following materials:
 - a. Disaster operation identification nametag
 - b. Disaster operations vehicle window tag
 - c. Equipment control tag
 - d. Disaster worker registration tag
 - e. Disaster worker registration form if they have not been previously registered

E. The identification number will be as follows:

93 - 07 22 - 01 - 02
Year Month Day Daily Number of
 Team Days Working

III. DISASTER WORKER'S BRIEFING

- A. During the Second Phase operations, and after Mutual Aid personnel are in place, a daily briefing for all Safety Assessment Evaluators, Operations, and support personnel will be conducted covering the following:
 1. Inspections
 - a. Zone Area of coverage
 - b. Special Assessment areas
 2. Equipment
 3. Special Services
 - a. Aid Groups and organizations
 - b. Phone numbers
 - c. locations
 4. Questions - Answers
 - a. Field conditions
 - b. Operation conditions
 - c. Media relations/referrals
- B. When possible, and information is provided by Incident Command, a list of all Support Agencies and Operations will be provided as a handout publication for Post-Disaster Safety Assessment Evaluators to hand out in the field.

PHASE - 2

IV. EVALUATORS INSTRUCTION SHEET

- A. "Inspection teams" of at least two (2) people will conduct inspections.
- B. Inspections will only be conducted during daylight hours. (Depending on the time of year 0900 - 1630 hrs.)
- C. All forms, placards, and maps will be turned in at the end of each day completed, relating to work assigned:
 - 1. Detailed Evaluation Safety Assessment Sheets
 - 2. Rapid Evaluation Safety Assessment Sheets
 - 3. Structure-by-Structure Tally Sheets
 - 4. "INSPECTED" placards
 - 5. "RESTRICTED USE (or LIMITED ENTRY)" placards
 - 6. "UNSAFE" placards
 - 7. Windshield Survey Tally Sheets

V. DISASTER OPERATIONS LAYOUT AND SET-UP

- A. During the Second Phase of a disaster, it is essential that a proper flow of necessary operations be established to minimize the amount of time spent on registration, equipment checkout, check-in, record keeping, and general disbursement of information. Listed below is a way this could be handled depending on the location of the Department Operations Center for the Building and Safety Department.
 - 1. Registration (1-table, 2-personnel)
 - a. Registration and Loyalty Oath if individuals have not been registered previously.
 - b. Identification Number assignment
 - 1) Registration sheet
 - 2) Identification card
 - 3) Vehicle Window Tag
 - 4) Equipment control tag
 - 5) Identification number control tag
 - 2. Inspection Team Materials (2-tables, 2-personnel)
 - a. See Equipment List on page 22 of this manual.

PHASE - 2

- b. This area will serve two (2) functions during a disaster operation
 - 1) Check out of materials and equipment
 - 2) Checking in of reports and equipment
- B. All tables and areas for these functions should not be set up end-to-end. Registration should be one area, and inspection team materials in a separate area to allow for a more efficient operation.

SAMPLE LIST OF PUBLIC AGENCY PHONE NUMBERS

EMERGENCY TELEPHONE NUMBERS

POLICE	911
FIRE DEPARTMENT	911
PUBLIC SERVICE DEPARTMENT	
BUILDING AND SAFETY DEPARTMENT	
CITY HALL BUILDINGS	
ELECTRIC COMPANY	
GAS COMPANY	
WATER COMPANY	
TELEPHONE COMPANY	
HOUSING AUTHORITY	
LEGAL AID ASSISTANCE	
AREA FOOD BANK AND ASSISTANCE	
AMERICAN RED CROSS	
SMALL BUSINESS ADMINISTRATION	1-800-462-9029 1-800-462-7585 (TTY)
FEMA (For homeowners and renters)	1-800-621-FEMA (1-800-621-3362)

PHASE - 2

BUILDING AND SAFETY DEPARTMENT EMERGENCY RESPONSE FORMS LIST

Windshield Survey, Summary Form

Windshield Survey, Tally Sheet

Earthquake Assessment Form

Daily Log of Safety Assessment Evaluators

Structure-By-Structure Tally Sheet

Disaster Service Worker Registration And Loyalty Oath Forms

Detailed Evaluation Form (Safety Assessment)

Rapid Evaluation Form (Safety Assessment)

Equipment Checkout Form

The following is a list of equipment that should be issued to each team (2 inspectors) for the amount of time (days) they are registered to work:

1. Clipboard
2. T-50 staple gun
3. T-50 staples (1-box)
4. Duct tape (1-roll)
5. 50 - Detailed Evaluation Forms (Safety Assessment)
6. 50 - INSPECTED placards (green)
7. 50 - RESTRICTED USE (or LIMITED ENTRY) placards (yellow)
8. 50 - UNSAFE placards (red)
9. 1-set Assigned area maps
10. 10-Earthquake assessment tally sheets
11. City map
12. 1-set red, yellow, green, black markers
13. 2-#2 pencils
14. 2-black ball point pens
15. 1-roll barrier tape (yellow w/ black letters)
16. Hard hats for team (if needed)

PHASE - 2

EQUIPMENT CHECKOUT FORM

The equipment listed on this form is the property of the Jurisdiction Building and Safety Department Disaster Operations. This equipment is for use during disaster operations by authorized personnel only, and no equipment will be issued without a signature of the recipient receiving listed equipment. The person signing for equipment issued will be responsible for the care and use of this equipment and if damaged (other than normal use) or not returned, replacement costs will be charged and collected.

1. INSPECTION FORMS
 - a. Rapid Assessment forms.....
 - b. Detailed Assessment forms.....
 - c. Windshield Survey forms.....
 - d. Structure-by-Structure forms.....
 - e. Area maps.....
 - f. Earthquake assessment tally sheets.....
2. PLACARDS
 - a. Green.....
 - b. Yellow.....
 - c. Red.....
3. CLIPBOARD.....
4. FLASH LIGHT.....
5. FLASH LIGHT BATTERIES.....
6. BARRIER TAPE W/BLACK MARKING.....
7. STAPLE GUN (T-50).....
8. STAPLES (T-50).....
9. DUCT TAPE.....
10. MASKING TAPE.....
11. CITY MAP.....
12. MARKERS (RED, YELLOW, GREEN, BLACK).....

ISSUED TO DIASTER WORKER EVALUATORS

The undersigned has received items checked or quantities listed, and will return equipment and materials at the end of my working assignment.

Logistics

Evaluator

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**Standard Operating Procedures
Safety Assessment**

SAFETY ASSESSMENT

I. PURPOSE

The purpose of this document is to provide the Jurisdiction and the Building and Safety Department a response plan to be used in establishing procedures for safety assessment, reporting, inspections, and issuance of permits during a disaster. The objectives of this plan are to:

- A. Ensure that safety assessment information can be compiled, assembled, and reported in an acceptable manner to local, state and federal agencies.
- B. Establish procedures for the inspection of all structures within the disaster stricken area and the posting of all structures that have been inspected.
- C. Provide a reporting procedure for financial losses of public and private facilities and property. To provide the Jurisdiction a disaster economic impact report.
- D. Provide the Jurisdiction a basic organization and procedures plan to accomplish the above with the least possible delay. When Department staffing is inadequate, additional personnel will be acquired from other City Departments or requested from outside jurisdictions through mutual aid, or from county, state, and federal agencies.

II. NOTIFICATION

- A. Whenever a disaster occurs, it is vitally important that the Jurisdiction Building and Safety Department be capable of contacting all employees. Therefore, all employees shall make every effort to contact their supervisor or be available for contact.
- B. The public telephone system will be used for notification of personnel whenever possible. Department personnel will keep the enclosed list of personnel and numbers. Upon notification by the OES, the Building and Safety Department Disaster Coordinator will notify all necessary staff for field and administrative operations.
- C. If the disaster hinders the ability to use telephone service, the staff will respond in accordance with the enclosed call and response list to a designated location. Assignments may also be made through emergency radio broadcasts, C.B. radio, cellular phone, handi-talkies, etc.

SAFETY ASSESSMENT

D. Notification And Mobilization

1. Table 1 - SUGGESTED NOTIFICATION PROCEDURE

DURING WORKING HOURS

	<u>Phones in Service</u>	<u>Phones NOT in service</u>
Bldg. Dept. DOC Director	Telephone OESC	Report to DOC
Section Chiefs, Office & Field Unit Coordinators	a. Telephone BDC b. Telephone OESC	a. Report to office b. Report to designated location c. Report to Police or Fire Dept.
Staff in office	Check with Supervisor	Check with Supervisor
Staff in field	Check with Supervisor	a. Radio Communication b. Drive to office c. Contact Police/Fire d. Report t designated location

2. Table 2 - SUGGESTED NOTIFICATION PROCEDURE

DURING NON-WORKING HOURS

	<u>Phones in Service</u>	<u>Phones NOT in service</u>
Bldg. Dept. DOC Director	Telephone OESC	Report to DOC
Section Chiefs, Office & Field Unit Coordinators	a. Telephone BDC b. Telephone OESC	a. Report to office b. Report to designated location c. Contact Police or Fire Dept.
All other staff	a. Phone office b. Wait by phone c. Contact _____	a. Report to office b. Report to designated location c. Listen to local radio

SAFETY ASSESSMENT

3. Table 3 - NOTIFICATION PROCEDURE

DURING WORKING HOURS

<u>Personnel</u>	<u>Office Phone</u>	<u>Pager</u>	<u>Cellular</u>
<u>BUILDING DEPARTMENT DOC DIRECTOR</u>			
<u>OPERATIONS SECTION CHIEF</u>			
<u>OFFICE UNIT COORDINATOR</u>			
<u>FIELD UNIT COORDINATOR</u>			
<u>LOGISTICS SECTION CHIEF</u>			
<u>PLANS/INTELLIGENCE SECTION CHIEF</u>			
<u>FINANCE/ADMINISTRATION SECTION CHIEF</u>			
<u>DEPARTMENT PERSONNEL</u>			

III. RESOURCE REQUEST CHECKLIST

- A. Prior to requesting additional resources, the following conditions must be satisfied:
 - 1. A local emergency must be proclaimed. Contact the jurisdiction's emergency services coordinator for procedures.
 - 2. All local resources must be committed.
- B. Checklist for requesting and implementing resource requests:
 - 1. Activate system through the Jurisdiction EOC, Operations Section, Construction & Engineering Branch.
 - a. Advise EOC how many safety assessment evaluators are needed, supplies they should bring, where they are needed and approximately for how long.
 - b. Logistics Section will then contact the Operational Area.

SAFETY ASSESSMENT

- c. The Operational Area will locate resources from other building departments, state, and federal agencies through the Governor's Office of Emergency Services Regional Emergency Operations Center (REOC).
 - d. Operational Area will then contact the requesting jurisdiction (through their respective EOC, Logistics Section) and inform them of the resources obtained and conditions thereof.
 - e. EOC, Construction & Engineering Branch will contact the Building Department Safety Assessment Unit Coordinator and inform him/her of the resources obtained and when and where they will report.
- 2. Inform field supervisors when and where safety assessment evaluators will arrive and what supplies they will need.
- 3. Verify that safety assessment evaluators are registered as disaster service workers. If not:
 - a. Complete registration forms.
 - b. Issue identification cards.
 - c. Maintain log of registered “mutual aid” evaluators.
- 4. Coordination with Logistics Section for facilities for safety assessment evaluators as needed.
 - a. Sleeping and eating;
 - b. Transportation; and
 - c. Equipment.
- 5. Inform field supervisors of accommodations.

IV. EMERGENCY RESPONSE LEVELS

Emergency assistance may be activated at three different levels based on the severity and scope of the incident. The levels are:

LEVEL I

- | | |
|-------------|--|
| Description | 1. A minor incident |
| | 2. Few structures are damaged in scattered areas. |
| | 3. Local resources are adequate. |
| | 4. A local emergency may or may not be proclaimed. |
- =====

SAFETY ASSESSMENT

- | | |
|----------|--|
| Examples | <ol style="list-style-type: none"> 1. Localized storm water or high tide damage. 2. Localized wind damage. 3. Localized damage due to minor earthquake. |
|----------|--|

- | | |
|----------|---|
| Response | <ol style="list-style-type: none"> 1. No immediate disturbance of day-to-day workload. 2. Inspectors drive through disaster area enroute to scheduled inspection, then call in to report damage or request any specialty inspections. 3. Damaged buildings reported by public will be inspected by an appointed assessment team. |
|----------|---|

LEVEL II

- | | |
|-------------|--|
| Description | <ol style="list-style-type: none"> 1. A moderate disaster. 2. Damage is not inflicted in a densely populated area. 3. Damage is concentrated in one central area. 4. Many structures are damaged. 5. A local emergency shall be proclaimed. 6. A State of Emergency may be proclaimed. |
|-------------|--|

- | | |
|----------|---|
| Examples | <ol style="list-style-type: none"> 1. Heavy fire damage in widespread, populated rural area. 2. Explosion and fire in urban area. 3. Airplane crash in urban area. |
|----------|---|

- | | |
|----------|--|
| Response | <ol style="list-style-type: none"> 1. Determine affected area. 2. Although not all staff may be allocated to the emergency, service levels will be diminished. 3. Some mutual aid may be requested. 4. Windshield survey may be conducted in affected areas. |
|----------|--|

LEVEL III

- | | |
|-------------|---|
| Description | <ol style="list-style-type: none"> 1. A major disaster. 2. Damage is widespread throughout densely populated areas. 3. Extensive state or federal assistance is required. 4. Local emergency has been proclaimed. 5. State of Emergency has been proclaimed. 6. Presidential declaration of an emergency or major disaster will be requested. |
|-------------|---|

SAFETY ASSESSMENT

- | | |
|---------|--|
| Example | <ol style="list-style-type: none"> 1. Large scale earthquake with widespread damage. 2. Heavy flooding throughout several urban areas. |
|---------|--|

- | | |
|----------|--|
| Response | <ol style="list-style-type: none"> 1. Determine affected areas. 2. Total shutdown of routine service. 3. Mutual aid will be requested. 4. May aid in emergency search and rescue if requested by police and/or fire. 5. Windshield survey will be conducted. 6. Structure-by-structure survey will be conducted. |
|----------|--|

V. PRE-EMERGENCY RESPONSIBILITIES FOR LOCAL JURISDICTION

- A. Maintain a list of all personnel available for damage assessment with current addresses and home numbers.
- B. Maintain a list of jurisdiction vehicles available for damage assessment, and keep spare set of keys in the department's office to be utilized if the person assigned to a particular vehicle cannot respond.
- C. Establish procedures for notification of staff during on- and off-duty hours.
- D. Provide at least one direct telephone line with an unlisted number to allow incoming and outgoing calls if the department's system is overloaded with calls during an emergency.
- E. Notify telephone company of lines that should receive priority service during an emergency (e.g., department lines, key personnel, etc.)
- F. Formally adopt placards. Pre-print placards in secondary languages (such as Spanish) as required.
- G. Obtain safety assessment forms for immediate (basic) and detailed structure-by-structure surveys.
- H. Obtain other required record-keeping forms.
- I. Prepare a list of essential buildings and their addresses.
- J. Obtain radios to establish an alternate means of communication in case the telephone system goes down. Mobilization of a response unit of amateur HAM radio operators may be used to supplement the Jurisdiction's communications system.
- K. Obtain wall maps of Jurisdiction showing streets, lots, and census tract information. Plastic overlays are also recommended.
- L. Prepare an inter-jurisdictional map of key staging areas.

- M. Maintain a sufficient amount of office supplies and equipment on hand to manage operations during an emergency, including supplies for mutual aid evaluators.
- N. Pre-arrange transportation and sleeping facilities for disaster and mutual aid evaluators.
- O. Train staff on implementation of the Emergency Building Inspections Plan and train evaluators on the contents of ATC-20.
- P. Periodically (at least annually) conduct simulation tests of the Emergency Building Inspections Plan.
- Q. Establish procedures for issuing permits for reconstruction after the emergency.
- R. Keep plan updated.

SAFETY ASSESSMENT

OPERATIONS INVENTORY - Based on Jurisdiction of 25,000 Population

FORMS-CARDS-SIGNS

500	Windshield Survey Summary Sheets
300	Windshield Survey Tally sheets
300	Earthquake Assessment forms
500	Daily Log of Disaster Inspectors
500	Structure-by-Structure Tally sheets
1100	Disaster Service Worker Registration and Loyalty Forms
300	White sheets
500	Yellow sheets
300	Red sheets
1000	Detailed Evaluation Safety Assessment forms
4000	Rapid Evaluation Safety Assessment forms
200	Equipment Checkout forms
100	Inspection Team Assignment forms

Building Placards

4000	Green "INSPECTED"
3000	Yellow "RESTRICTED USE (OR LIMITED ENTRY)"
2000	Red "UNSAFE"
4	"Registration" signs
2	"Check-out" signs
2	"Check-in" signs
4	"Origination" signs

TOOLS

14	#T-50 Staple Guns
14	boxes T-50 Staples
9	Claw Hammers
8	8" Wire Cutters
6	10" Crescent Wrenches
6	12" Channel Lock Pliers
6	12" Pipe Wrenches
6	25' Steel Tapes
6	100' Steel Tapes
6	Torpedo Levels
6	Vise Grips
6	4-1 Screw Drivers
12	Flash lights (D cell)
6	Plastic toolboxes
4	Plastic Storage Boxes (large)
2	Plastic Storage Boxes (medium)
4	Plastic File Boxes (small)

SAFETY ASSESSMENT

EQUIPMENT

5	First-aid Boxes
2	Electric calculators w/tape and 110-v adapter
4	Binoculars w/case
6	Electric Testers
24	Hard hats (white)
25	Clip boards
12	Rolls of Silver Duct Tape
12	Rolls of 1" Masking Tape

SUPPLIES

250 ea.	Plastic I.D. Tag Holders w/clip
6 ea.	Desk Staples
25 boxes	Thumb tacks
36 ea.	Red Felt Markers
36 ea.	Yellow Felt Markers
36 ea.	Green Felt Markers
36 ea.	Black Felt Markers
24 dz.	#2 Pencils
12 dz.	Black Pens
6 boxes	Paper clips
6 boxes	Staples
25 ea.	#25973 Pressboard Binders
4 ea.	Polaroid Cameras
8 ea.	Polaroid Film
48 ea.	Legal size Yellow Pads
4 ea.	Storage cabinets (30x72)
4 ea.	Cellular Phones w/ Belt Case, 12-v Car adapter, Extra Battery

**Safety Assessment
Reference Forms**

SAFETY ASSESSMENT FORMS

**SAFETY ASSESSMENT EVALUATORS
REGISTRATION AND LOYALTY OATH**

Date Registered _____

Name _____

Address _____

Telephone No. (____) _____

Work Assignment _____

I.D. Card No. _____

Date of Birth _____

Hair _____ Eyes _____

Height _____ Weight _____

Prof. Lic. No. _____

LOYALTY OATH OF AFFIRMATION
(Government Code Section: 3102)

I, _____ do solemnly swear (or affirm) that I will support and defend the Constitution of the United States and the Constitution of the State of California against all enemies foreign and domestic, that I will bear true faith and allegiance to the Constitution of the United States and the Constitution of the State of California, that I take this obligation freely, without any mental reservations or purpose of evasion, and that I will, well and faithfully, discharge the duties upon which I am about to enter.

Taken and subscribed before me,
on _____, 20____
at _____

Evaluator

(Authorization Official)

The completion of the information identified on this form is mandatory in accordance with Government Code Section 8589 and the California Emergency Council Rules and Regulations. All other information is voluntary. Purpose of information is registration as a Disaster Service Worker. Failure to provide mandatory information is grounds for disqualification as a Disaster Service Worker. The official responsible for maintenance of this information and the location filed are shown below:

(Disaster Council)

(Location on file)

(Address)

SAFETY ASSESSMENT FORMS

SAMPLE NEWS RELEASE

FOR IMMEDIATE RELEASE

The (Jurisdiction) advises all contractors wishing to engage in repairs or reconstruction work necessitated by our recent disaster to obtain permits and copies of disaster damage inspection forms before proceeding with any work. In addition, all contractors must be State Licensed and have a local business license before permits may be issued.

All citizens and residents of (jurisdiction), please be informed that the purpose of these requirements is to screen out possible opportunists from taking advantage of the current situation. Furthermore, residents are cautioned and warned not to sign blank contracts, agree to have work performed without first seeing the contractor's current State and local licenses, nor allow work or alterations not authorized by the (jurisdiction) Building Department.

Signature

Title

Phone Number

Date

Coordinator _____

WINDSHIELD SURVEY

Tally Sheet

Area covered by this Tally sheet:

Include street/highway boundary)

Date: _____ Assessed by: _____

STRUCTURE CATEGORIES	DESTROYED	MAJOR DAMAGE	MINOR DAMAGE
1) Low-Cost Homes below <u>\$100,000</u> (approx. value)			
2) Medium-Cost Homes between <u>\$100,000 - \$200,000</u> (approx. value)			
3) High-Cost Homes above <u>\$200,000</u> (approx. value)			
4) Mobile Homes			
5) Rental Units (Apartments)			
6) Farm Homes			
7) Businesses			

All Residential Units

Minor Damage - 10% or less damaged

Major Damage - 10% - 80% damaged

Destroyed - 80% or more damaged

Applicant _____ Category _____
Facility (Major)

177

SAFETY ASSESSMENT EVALUATORS
TEAM ASSIGNMENTS

Team Number	Name of Evaluator	SAP Identification Number

ATC-20 Rapid Evaluation Safety Assessment Form

Inspection

Inspector ID: _____ Inspection date and time _____ ☐ AM ☐ PM
Affiliation: _____ Areas inspected: ☐ Ext. only ☐ Exterior and interior

Building Description

Building Name: _____
Address: _____
Building contact/phone: _____
Number of stories above ground: _____ below ground: _____
Approx. "Footprint area" (square feet) _____
Number of residential units: _____
Number of residential units not habitable: _____

Type of Construction

☐ Wood frame ☐ Concrete shear wall
☐ Steel frame ☐ Unreinforced masonry
☐ Tilt-up concrete ☐ Reinforced masonry

Primary Occupancy

☐ Dwelling ☐ Commercial ☐ Govt.
☐ Other residential ☐ Offices ☐ Historic
☐ Public assembly ☐ Industrial ☐ School
☐ Emergency Services ☐ Other: _____

Evaluation

Investigate the building for the conditions below and check the appropriate column.

Estimated Building Damage (excluding contents)

Observed Conditions:

Minor/None

Moderate

Severe

☐ None

Collapse, partial collapse, or building off foundation

☐

☐

☐

☐ 0 - 1%

Building or story leaning

☐

☐

☐

☐ 1 - 10%

Racking damage to walls, other structural damage

☐

☐

☐

☐ 10 - 30%

Chimney, parapet, or other falling hazard

☐

☐

☐

☐ 30 - 60%

Ground slope movement or cracking

☐

☐

☐

☐ 60 - 100%

Other (specify) _____

☐

☐

☐

☐ 100%

Comments: _____

Posting

Choose a posting based on the evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an UNSAFE posting. Localized *Severe* and overall *Moderate* conditions may allow a RESTRICTED USE posting. Post INSPECTED placard at main entrance. Post RESTRICTED USE and UNSAFE placards at all entrances.

☐ INSPECTED (Green placard) ☐ RESTRICTED USE (Yellow placard) ☐ UNSAFE (Red placard)

Record any use and entry restrictions exactly as written on placard _____

Further Actions: Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

▪ Detailed evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other: _____

▪ Other recommendations: _____

Comments: _____

(This page intentionally left blank.)

ATC-20 Detailed Evaluation Safety Assessment Form

Inspection Inspector ID: _____ Affiliation: _____ Inspection date and time: _____ <input type="checkbox"/> AM <input type="checkbox"/> PM	Final Posting from page 2 <input type="checkbox"/> Inspected <input type="checkbox"/> Restricted Use <input type="checkbox"/> Unsafe
---	--

Building Description Building Name: _____ Address: _____ Building contact / phone: _____ Number of stores above ground _____ below ground _____ Approx. "Footprint area" (square feet) _____ Number of residential units: _____ Number of residential units not habitable: _____	Type of Construction <input type="checkbox"/> Wood frame <input type="checkbox"/> Concrete shear wall <input type="checkbox"/> Steel frame <input type="checkbox"/> Unreinforced masonry <input type="checkbox"/> Tilt-up concrete <input type="checkbox"/> Reinforced masonry <input type="checkbox"/> Concrete frame <input type="checkbox"/> Other: _____ Primary Occupancy <input type="checkbox"/> Dwelling <input type="checkbox"/> Commercial <input type="checkbox"/> Govt. <input type="checkbox"/> Other residential <input type="checkbox"/> Offices <input type="checkbox"/> Historic <input type="checkbox"/> Public Assembly <input type="checkbox"/> Industrial <input type="checkbox"/> School <input type="checkbox"/> Emergency Services <input type="checkbox"/> Other: _____
--	---

Evaluation Investigate the building for the conditions below and check the appropriate column. There is room on the second page for a sketch.				
	Minor/None	Moderate	Severe	Comments
Overall hazards:				
Collapse or partial collapse	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Building or story leaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Structural hazards:				
Foundations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Roofs, floors, (vertical loads)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Columns, pilasters, corbels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Diaphragms, horizontal bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Walls, vertical bracing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Precast connections	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Nonstructural hazards:				
Parapets, ornamentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Cladding, glazing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ceilings, light fixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Interior walls, partitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Elevators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Stairs, exits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Electric, gas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Geotechnical hazards:				
Slope failure, debris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Ground movement, fissures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
General Comments: _____				

Further Actions Check the boxes below only if further actions are needed.

■ Barricades needed in the following areas:

■ Engineering Evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other:

☐ Other recommendations: _____

Comments: _____

APPENDIX C - SLIDE HANDOUTS